

# MARITIME STRATEGIC EVALUATION FOR ISRAEL 2022/23

Chief Editor: Prof. Shaul Chorev

Editor: Dr. Ziv Rubinovitz





"We realize that the sea state is not a border and barrier, but a bridge and a gateway to a vast empire that resides in endless waters." – David Ben-Gurion

## Maritime Policy & Strategy Research Center

The HMS Center was established in 2016 as the result of the vision and inspiration of Naval Captain (Ret.) Dev Shafir and has been sustained with the generous financial support of Dev and his late wife Ruth



המרכז לחקר מדיניות ואסטרטגיה ימית  
Maritime Policy & Strategy Research Center



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June 2023

### *Thanks and appreciation*

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The Maritime Strategy Evaluation report, including the insights and recommendations, are based on the personal experience and professional judgment of the authors, but do not necessarily represent the official position of the Center or of the University of Haifa.

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Photos (left to right): Skyhawk jets on deck of a ship en route to Israel post-1973 Yom Kippur War; The Moskva cruiser; Hurricane in the Atlantic Ocean; Rosh Hanikra, the border between Israel and Lebanon; Wind turbines at sea; Unmanned Ukrainian vessel.

## Maritime Policy & Strategy Research Center

The center is developing knowledge in maritime strategy, focusing on Israel's maritime surroundings: the Eastern Mediterranean and the Red Sea. The center does so in five core areas: (1) regional security and foreign policy, (2) the mobility of goods, people and ideas, (3) law, (4) energy, and (5) the environment. In 2017, the Wydra Research Center for Shipping and Ports was added as a division to the Maritime Policy and Strategy Research Center (HMS), and in 2020 the Ezri Center for Iran and the Gulf States Research was also attached to HMS.

The center was established in response to the of rising significance of the maritime domain both globally and in our region: the emerging strategic maritime competition between the United State and China, the expansion of exclusive economic zones (EEZ) and the crucial role of the seas in the international economic system both as a source of economic activity as well as serving as the world's main trade route. Our immediate environment saw a similar rise in the significance of the seas including the oil discoveries in the Eastern Mediterranean, the evolution of the Israeli Navy into a national strategic arm, Israel's total dependence on sea trade, and the growing realization that future development of national infrastructure may have to be done in the sea as land is becoming scarce.

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## Executive Summary

In 2022, global processes with great significance for the maritime domain continued to develop, alongside new developments with immediate and long-term effects on the entire international system and the maritime domain. There is no doubt that 2022 was marked by the Russia-Ukraine war and the growing tensions between the United States and China, and the Maritime Strategic Evaluation for Israel 2022/23 reflects this in that most of the articles address the war or its effects – either directly or indirectly, emphasizing its naval aspects. The articles directly addressing the war and its effects are presented in section 2.

For Israel, the maritime border agreement with Lebanon is the main development in the maritime context, and one of the articles presented here is dedicated to this event. Against the background of the global energy crisis, which was partly caused by the Russia-Ukraine war, the energy sources in the eastern Mediterranean Sea, including Israel's natural gas fields, continue to shape the political and economic dynamics in the region, and given the war in Ukraine and European countries wish to stop relying on Russian gas, it seems there is and will be a growing demand for the Mediterranean energy resources, which all energy producing countries in the region will be able to benefit from.

The Maritime Strategic Evaluation for Israel this year includes 20 articles presented in six sections, as well as this summary and a conclusion, insights, and recommendations chapter. Below is a brief overview of the main points presented in this document.

### Section 1: The Maritime Domain – Strategic Perspectives in the Global Arena

#### *Global Developments in the Maritime Domain*

Shaul Chorev reviews global political, economic, and environmental developments and their impact on the maritime domain. Like every year, he also reviews developments in major navies around the world and in the Middle East and their significance, including aspects related to strategy, budget, procurement, and operations.

**Global developments:** Over the past year, the international system continued to deal with new forms of Covid-19, while trying to return to normal, but the dying down of the virus around the world boosted the demand for goods, which led to delays in the global supply chain. However, this issue was slightly pushed aside in light of fewer reported cases of illness and due to a new issue on the global agenda – the Russia-Ukraine war. Following Russia's invasion of Ukraine, a series of harsh sanctions were imposed on Russia, which in



turn affected the global economy. A significant result of the war was the strengthening of NATO's eastern front against Russia, especially with Finland and Sweden beginning the process of joining the alliance.

At the same time, the conflict between the United States and China intensified – especially in the summer of 2022, in light of then-Speaker of the House, Nancy Pelosi's visit to Taiwan – and as the United States' balancing actions directed at China in the Indo-Pacific region increased. Additionally, negotiations to reinstate the nuclear agreement with Iran have not been progressing, while Iran continues to strive to become a nuclear threshold state. In the eastern Mediterranean, the Turkey-Greece-Cyprus conflict continues, as well as the severe economic and political crisis in Lebanon. The highlight for Israel in the maritime domain during the past year was the signing of the agreement on the demarcation of the maritime border with Lebanon, mediated by the United States. When it comes to climate-related issues, phenomena caused by climate change have continued to manifest and even worsened.

Russia's invasion of Ukraine on February 24, 2022, shocked the international community, and Russia has warned that under certain extreme situations, it may use its nuclear weapons. The West's response to this invasion is mainly the imposition of severe economic sanctions on Russia and the provision of military aid to Ukraine. That being said, opposition to the Russian invasion is not universal – about 35 countries did not support the decision to condemn Russia at the UN General Assembly in March 2022. The most significant country that abstained from voting in this context is China, which only in February 2022 (before the invasion) ratified its close relationship with Russia. Russia's invasion of Ukraine led the NATO member states to commit to increasing their defense budget, to a total amount greater than \$209 billion. The European Commission also raised a demand for a massive investment to modernize military equipment of its members.

Presidents of China and Russia, Xi Jinping and Vladimir Putin, declared a limitless friendship between their countries three weeks before the war and sharply criticized the United States and NATO. The Russian invasion of Ukraine, and especially the annexation of four occupied provinces following fabricated "referendums", caused economic and diplomatic unease for China, but did not undermine the relationship between China and Russia. Yet, it is important to note the differences in approach between the countries. While Russia is ready to destabilize the international system with forceful actions such as the invasion of Ukraine, China prefers to maintain stability and protect its economic interests around the world, being perceived as cautious. Russia and China perceive the alliances that the United States is maintaining, such as NATO in Europe and the Quad group in the Indo-Pacific region, as a threat to their security and regimes.

China continues to adhere to its goal of becoming a global power, protect territories it considers as belonging to it and building a world-class military to establish its importance when it comes to regional affairs, a move that may undermine stability and norms in international relations. China's military establishment and its aggressiveness in its territorial claims in the South China Sea and against Taiwan, raise questions in regard to its intentions.

The Biden administration released its national security strategy in October 2022. This document identifies the most pressing and worrisome challenge regarding authoritarian powers with revisionist foreign policies that challenge peace and stability. Thus, the United States prioritizes maintaining a sustained competitive advantage over China, while keeping Russia at bay. Russia is an immediate threat to the free international system, but China is the only adversary with intentions to reshape the international order. Furthermore, NATO has adopted its strategic concept document (created every ten years) in which China was defined as a "systemic challenge" and Russia as the "most significant and direct threat". In February 2022, the Biden administration published its strategy for the Indo-Pacific region, which is increasingly important for economic and military reasons. The United States goals in this context are to promote a free and open region, build ties in the region and beyond, promote prosperity and security, and build regional resilience in the face of transnational threats.

**Regional developments:** China has increased its involvement in the Middle East and in December 2022 President Xi Jinping visited Saudi Arabia and also met the leaders of the Gulf countries, which illustrates the difficulties in the relationship between the United States and Saudi Arabia. During the visit, a strategic alliance was signed between China and Saudi Arabia as well as a series of agreements amounting to tens of billions of dollars, which undermine US dominance in the Arabian Peninsula and the Persian Gulf. The volume of trade between China and Saudi Arabia increased by a sharp 380% between 2016 and 2020, mainly because of the sale of Saudi oil to China.

US President Joe Biden visited the Middle East in July 2022 and declared five principles of his policy in the region: partnership (with countries that accept the existing arrangement while the United States ensures that they can defend themselves against threats), deterrence (of other powers or regional powers from endangering freedom of navigation in the region, including in the Strait of Hormuz and Bab el-Mandeb; or of a particular country from dominating another country or region through military or threatening means), diplomacy (the United States will work to reduce tensions and resolve conflicts), integration (building political, economic and security ties between its partners in the region) and values (promoting human rights and values enshrined in the UN Charter).

Lebanon and Israel's maritime border deal was reached through US mediation, and its main goal is to address the status quo near the coast (the buoys line), establish a permanent border line from the end of the line of buoys to the end of the exclusive economic zone, end the conflict over the disputed area between the countries, and regulate the development of the reservoir that is located across the line. Lebanon will now be able to test the potential of the Kana Reservoir, which may help it recover from its ongoing economic and political crisis. For Israel, this agreement resolves questions regarding the development of the Karish field and may allow it to enjoy part of the profits of Kana in the future.

Two years after the signing of the Abraham Accords, opportunities arose for security cooperation mainly between Israel, the United Arab Emirates, and Bahrain, who share a similar view of the Iranian threat. The Negev Summit that convened in Sde Boker in 2022 added Egypt to the circle of the Abraham Accords and allowed for cooperation initiatives on issues such as energy, food and water security, health, and other issues. But without progress on the Palestinian issue, the Abraham Accords might turn into another cold peace.

The transfer of sovereignty over the Straits of Tiran from Egypt to Saudi Arabia in 2017 could create problems with Israel's freedom of navigation in the Straits. This issue was settled in the peace treaty with Egypt in 1979, but now that Saudi Arabia has sovereignty over the islands, it is not bound by this treaty. The multinational force that oversees the implementation of the treaty will end its role and be replaced by optical means. This might not be enough, especially when there are increasing signs that Saudi Arabia is politically moving away from the United States, meaning that US support for any understanding between Israel and Saudi Arabia will not be enough.

Iran continues its struggle against the United States and its allies in the Middle East. It will continue to project power through its security forces, including the Iranian Revolutionary Guard Corps, and its proxies in the hope of concessions on the part of the international community. Iran continues conducting brinkmanship regarding the nuclear deal negotiations. It also aims to continue its hold on Syria as part of expanding its influence in the region, for example, in Lebanon, and through Hezbollah. It will continue to threaten Israel with missiles and through Hezbollah and to threaten US interests in the region.

The Red Sea, the Arabian Sea, and the Persian Gulf were all at the center of international tensions in 2022. The tension between Iran and the Gulf states, the conflicts between Iran and Israel, and between Iran and the United States – all shifted to the maritime domain in the Persian Gulf, the Gulf of Oman, and the southern Red Sea. The Red Sea contains geopolitical barriers in the form of chokepoints. The Strait of Hormuz is such

a chokepoint over which Iran dominates. The Houthis, with the support of Iran, create increasing dangers in the southern Red Sea, similar to the situation in the Persian Gulf. The great powers and regional countries have commercial and security interests in the Red Sea. The blockade of the Suez Canal for six days in March 2021 was a reminder of its importance to world trade. Additionally, there is fierce competition west of the Red Sea, in North-East Africa and the Horn of Africa, which increases the instability in the region and involves the region's countries as well as the great powers.

**Economy:** The world economy that has not yet recovered from Covid-19 is now dealing with the implications of the Russia-Ukraine war and an economic slowdown that has only increased. The long-term consequences of the Covid-19 pandemic on the world economy are increasing inequality within countries and between countries, which are expected to increase anti-globalization notions in the future. Furthermore, the pandemic increased populism, nationalism, and the return of states intervening in the economy, paving the way for protectionism. Thus, government responses to Covid-19 challenged the international institutions upon which globalization depends.

The Covid-19 pandemic affected value chains, starting with the purchase of raw materials and ending with the consumer. It created logistical disruptions, production delays, over-reliance on a limited number of third parties, and more significant investment in technology, commodity pricing, personnel, and labor. The challenges for the supply chains are a lack of materials due to increasingly high demands when there is limited availability of materials, an increase in transportation prices due to a lack of containers (in light of the increase in demand), difficulty in predicting demand by manufacturers and suppliers, overload in ports due to a lack of manpower and social distancing, which created holdups in the ports causing suppliers to not meet delivery deadlines, and a change in customers' expectations, who began demanding quick deliveries during the pandemic.

All of these problems were exacerbated by the war in Ukraine. Russia exports 15% of the oil, gas, and coal in the world of which the European Union is the main importer, as it depends on these energy sources. There are also other materials of which Russia is a leading and even dominant exporter, and for this reason, the war creates a problem in many industries around the world due to a lack of raw materials. Ukraine is also a significant exporter in this context causing the problem for the various global industries to increase. When it comes to food, the consequences of the war have severely affected low-income countries in Africa. Russia and Ukraine export about a third of the world's wheat, a quarter of the barley, and 75% of sunflower oil. Thus, the war and Russia's naval blockade of Ukraine's ports led to the interruption of supply chains, and this was exacerbated by the slowdown created by Turkey when it blocked the Turkish Straits. Under international

pressure, with Turkish mediation and under the auspices of the United Nations, Russia, and Ukraine signed an agreement that opened Ukraine's ports for grain export.

The demand for oil: Europe refrained from purchasing oil from Russia as a response to its invasion of Ukraine. As a result, Russia began exporting much more oil to China and India, with the latter importing about 900,000 barrels of oil a day from Russia compared to 30,000 in 2021, and it will likely be able to import about a million barrels a day. China also increased its oil imports from Russia. All of this will cause an increase in demand for tankers, but insurance companies could be prohibited from insuring tankers carrying Russian oil, which will affect the entire global shipping market. On the other hand, the liquefied natural gas market is thriving, and in 2022 the volume of liquefied gas transportation in tankers increased significantly as a response to disruptions in the gas pipeline. Europe imported more than half of the natural gas in ships this year.

Protection of underwater infrastructure: the Russia-Ukraine war illustrates the importance of this issue. Technical dependencies, supply chain risks, and critical infrastructure vulnerabilities create opportunities for unwanted foreign interference. Geopolitical competition today also takes place in the technological and digital realms. Countries and companies strive for technological supremacy and control of the world's cyberspace. Fiber optic cable networks carry 95% of the world's communication and data traffic. Most of them are underwater and thousands of kilometers long. This is the core of the digital age, so these cables need to be protected. The damage to the Nord Stream pipelines in September 2022 illustrates this danger.

Over time, climate change will create a combination of direct and indirect threats, including to the economy, and to political stability, as well as cause waves of immigration and refugees. Scientists warn against more extreme and frequent weather phenomena such as heat waves, droughts, and floods. As a result of this natural resources will dwindle and there will be more competition for remaining resources. The shipping industry causes an extreme amount of pollution and is responsible for about 3% of the world's carbon emissions alone; for this reason, the International Maritime Organization aligns with the decisions of the recent climate conferences in Glasgow (2021) and Sharm el-Sheikh (2022) to bring about a reduction in carbon emissions and a transition of ships to the usage of clean energy sources.

Chorev also reviews the main developments in several major navies around the world and the Middle East.

**The US Navy:** The US Navy still heads the list of the most powerful navies in the world, even though the Chinese Navy has surpassed it in the number of vessels it has. At the end

of March 2022, the US Department of Defense published three documents: the National Defense Strategy, the Nuclear Posture Review, and the Missile Defense Review. For the first time, they were written at the same time, thus, it is guaranteed that the relationship between the strategy's goals and the means for its realization will be coordinated. The budget requested by the Department of the Navy is \$230.8 billion.

China is referenced in these documents as the main threat to the United States Navy. The Commander of the Navy, Admiral Michael M. Gilday wrote in the "Navigation Plan" for 2022 that over the past three decades, China has aggressively leveraged its economic power to grow and modernize its military; it has tripled the size of its Navy; expanded its strategic nuclear capacity and capability, etc., and the result is a threat to freedom of navigation and risk to the position of US naval forces. China, he argued, is directing its power to reshape the security environment to its advantage by denying the United States military access to the western Pacific and beyond. In this context, the US Navy has set for itself a goal "to be an essential decisive force in this security environment". The Navy recognizes the development and technologies it will be required to deal with in the future – artificial intelligence, sensors, unmanned systems, and long-range precision weapons. All of which will change future battlefields.

The Navy document emphasizes the role of submarines in integrated deterrence, i.e. the reliable and safe strategic nuclear capability against the United States adversaries' aggression, and emphasizes that submarines are the surviving leg of the nuclear trinity, and hold 70% of the United States nuclear arsenal.

The US Navy in the Middle East: Russia's invasion of Ukraine has focused attention on the Black Sea, the Sea of Azov, and the Turkish Straits, and the Sixth Fleet is in charge of these areas alongside NATO. Some analysts claim that the United States and NATO did not focus on the Black Sea and thus Russia was able to act aggressively in the region. They add that neither the United States nor NATO has a strategy for this region, despite its geostrategic importance and the presence of three NATO members on its shores – Turkey, Bulgaria, and Romania. Following the outbreak of the war, the United States placed the *Harry Truman* aircraft carrier, which can be used as an air base if the United States decides to intervene in the war, near Greece. However, President Biden made it clear at the very beginning of the war that the United States and NATO would not get involved in the war against Russia. In the Red Sea and the Gulf of Aden, which are under the responsibility of the Fifth Fleet, Iran has been provoking the United States, but the Fifth Fleet has been trying to contain and overlook these provocations. The Fifth Fleet established the Naval Task Force 153 in February 2022 to deal with maritime threats in the Red Sea and the Gulf of Aden and initially led it, but at the end of 2022, Egypt took command of this force. This force operates alongside other regional forces like Force 150 outside the Persian Gulf, in

the Gulf of Oman, and the Arabian Sea. Force 151 is meant to prevent piracy in the entire area under the control of the fleet, and Force 152 operates in the Persian Gulf. Force 153 will operate from the Suez Canal to the Yemen-Oman border.

Israel sees great importance in its relations with the United States Central Command and especially with the Fifth Fleet, as reflected in the meetings held by former Prime Minister Naftali Bennett and former Defense Minister Benny Gantz with the Commander of CENTCOM and the Commander of the Fifth Fleet during their visits to Bahrain in February 2022. The Israeli Navy has already held a series of exercises with the Fifth Fleet, which indicates growing cooperation.

**The Chinese Navy:** Ranked second only to the US Navy. The increase in the importance of China's maritime interests has led its navy to increase the frequency of operations, their duration, and their range from China's shores. The Chinese Navy has grown greatly in terms of the number of ships it owns and their quality is already comparable to Western fleets. China seems to want to reach a situation where its navy can deter the US Navy from intervening in a conflict in the South China Sea, Taiwan Island, or elsewhere. If deterrence fails, the Chinese Navy will be able to delay its US adversary. The Chinese navy is also meant to secure China's shipping lines, help evacuate Chinese citizens from other countries if necessary, and assist with humanitarian issues in the case of natural disasters. Despite all this, it seems that the Chinese Navy is inferior to the US Navy in the fields of anti-submarine warfare, attacking targets at a great distance, training large crews, and unity of command. The Chinese navy has no combat experience. China is increasing its involvement in the Middle East through financial means. It strives to develop and expand the Maritime Silk Road that will connect China to the Mediterranean Sea through the South China Sea, the Indian Ocean, and the Suez Canal. This is an essential component of China's Belt and Road Initiative. As the United States reduces its activity in the Middle East, China increases its own activity. China has been investing a lot of money in Iran but also in its rivals, Saudi Arabia and the Gulf countries.

**The Russian Navy:** Number three in the world ranking. Its performance in the war in Ukraine is mixed. It succeeded in imposing a naval blockade of the Ukrainian ports and fired missiles at shore targets but lost its flagship and another ship, failed to maintain its hold of Snake Island, and conducted almost no amphibious operations. This performance is below the expectations set for the fleet. The new doctrine published at the end of July 2022 defines the worldview of the Russian Navy but does not suit its capabilities as reflected in the war in Ukraine or the lack of operational success in the Persian Gulf and the Red Sea. The attitude regarding the Mediterranean Sea has changed in this document when compared to the previous version from 2015. The Eastern Mediterranean is now

defined as an "important" region in which Russia is willing to use force to protect its interests.

**NATO:** The Biden administration is dealing with the restoration of relations with European allies of the United States. The war in Ukraine led Sweden and Finland to request to join the alliance and they were indeed invited to join, but the completion of the process requires the approval of all 30 members of the alliance, and at this time Turkey and Hungary have not yet granted their approval. NATO and the European Union responded to the outbreak of war in Ukraine with a great degree of effectiveness. The United States led the international response, especially in coordinating military support for Ukraine. NATO's support for Ukraine is balanced by a reluctance to enter into a direct military conflict with Russia. But the prolonged war is putting the united front of the West to the test. NATO's naval forces do not intervene in the campaign in Ukraine and do not challenge the Russian navy in the Black Sea. Furthermore, there is no agreement within NATO on what to do. The naval campaign depends on Odesa's standing. If Odesa is captured by Russia, which at the moment seems unlikely, Russia will control the entire Ukrainian coast and this will negatively affect Ukraine's ability to resist and prevent it from reaching world shipping lanes, which will exacerbate the food shortage once more. NATO's test will be if Russia attacks one of the alliance members, meaning they will have to activate Article 5 – the collective defense article.

**The Royal Navy:** Ranked ninth in the world. The United Kingdom has been helping Ukraine with weapons and humanitarian aid and has imposed sanctions on Russia and Belarus. The Royal Navy works to uphold the rules in the Indo-Pacific region and, like the United States, views China as the major threat to the existing order. Recently, there was an improvement in France's relations with the United States, the United Kingdom, and Australia after the signing of the AUKUS alliance, which canceled a \$66 billion contract to build submarines for Australia in French shipyards. Cooperation between the four countries is increasing in the Indo-Pacific region in which France is present more than any other European country. The United Kingdom has now begun to establish a permanent presence in the Indo-Pacific.

**The Indian Navy:** India remains neutral between Russia and Ukraine and the West, although it has been preserving its historic close ties to Russia, has been buying much more Russian oil, and even hosted Russian Foreign Minister Sergey Lavrov in April 2022. The Indian Navy is trusted to preserve India's natural wealth and make sure its shipping lanes are open and its international status is maintained. The Indian Navy ranks seventh in the world. It has grown in the last decade in order to look after India's growing interests. India's main rival is China.



**The Turkish Navy:** Ranked 11th in the world. Turkey has become a major player in the Russia-Ukraine war even though it is not a party to it. Turkey supplied Ukraine with armed UAVs and blocked the Dardanelles and Bosphorus straits to warships at the beginning of the war in Ukraine and mediated the grain deal in July 2022. Turkey found a gas field in the Black Sea and will begin to stream gas for its own needs, thereby ending its dependence on imports. It seems that Turkey's activity in the eastern Mediterranean stems from the "Blue Homeland" (Mavi Vatan) doctrine which has taken hold of the army and government and demands an expansion of Turkey's territorial waters and its exclusive economic zone at the expense of its neighbors, particularly Greece with its wealth of islands. Turkey continues to invest many resources in building up its naval power. Given the American sanctions as a result of the purchase of the S-400 system from Russia, Turkey has begun to manufacture its own vessels. Turkey aspires for its navy to be similar in size to the (UK) Royal and French navies. The Turkish Navy will continue to function as part of NATO but will also act independently to protect Turkey's maritime interests in the Eastern Mediterranean and the Black Sea.

**The Egyptian Navy:** Ranked 13th in the world, which indicates that Egypt is growing more powerful and wants to own the strongest navy in the region. The buildup of the navy reflects the understanding of the geostrategic challenges surrounding Egypt, in the Mediterranean Sea and the Red Sea. The revenues from the Suez Canal increased significantly in 2022, but the threats to the freedom of navigation in the Red Sea are increasing, therefore the importance of the presence of the Egyptian navy in the region, especially in the south of the Red Sea near the Bab el-Mandeb strait, is growing. The Northern Fleet (in the Mediterranean) was formed to deal with the competition for energy resources in the eastern Mediterranean and its main mission is to protect Egypt's economic interests.

**The Iranian Navy:** Ranked 18th in the world. The Iranian Navy is buying new ships and continues its actions in the southern Red Sea with the assistance of the Houthis in Yemen, but also escorts tankers that transport fuel from Iran to Syria and Lebanon. In 2022, Iranian provocations toward the United States continued in the maritime domain and the Iranian-Israeli conflict at sea continued as well, including an Iranian attack on a ship with business ties to Israel. The Iranian, Russian, and Chinese navies cooperate and carry out joint exercises.

**The Royal Saudi Navy:** ranked 30th in the world and divided into a western fleet operating in the Red Sea and an eastern fleet operating in the Persian Gulf, both with full military capability. Given the struggles in the region, Saudi Arabia invests heavily in its navy and cooperates with the navies of neighboring countries in training and securing freedom of navigation.

### *China's Port and Shipping Diplomacy*

Benni Ben Ari reviews China's existing ports and shipping strategy which is linked to its Belt and Road Initiative (BRI). Chinese shipping today is the largest in the world. This is necessary for China to satisfy the needs of its huge population, both in importing food and raw materials for industry, as well as for exporting. Container ships transport more than 80% of world trade, so the Chinese government invests in ports through which most of its international trade passes. Chinese companies also invest in ports around the world, similar to national companies of various countries that maintain many ports around the world – and in the Chinese case, more than 150 ports in 79 countries. China itself has seven of the ten largest ports in the world today, with the port of Shanghai being the largest in the world. China has three main maritime trade routes and invests accordingly in ports along the way: first through the Indo-Pacific region, Africa, and the Mediterranean Sea to Europe, second to the South Pacific and Australia, and third through the Arctic route to Europe (this is a future route). The article details the ports around the world in which China is involved and the implications of this involvement. Ben Ari claims that this network of ports is intended for economic and commercial needs only, not military ones.

### *Strategic Weapons Supplies in the context of Special Relations: AUKUS as a case study*

Itzhak Bilia researches the motive for the establishment of the partnership between the United States, the United Kingdom and Australia (AUKUS) whose purpose is the construction of nuclear-powered submarines for Australia, and which implies a comprehensive move in an alliance against China, which is gaining power in the Indo-Pacific region, especially given its aggressive steps in the South China Sea and its threats to Taiwan. He emphasizes that there is no intention to arm the submarines with nuclear weapons. The cooperation is expected to be military, scientific, and industrial and will include areas of cyber technology, artificial intelligence, quantum technology, and underwater capabilities. The article examines the strategic contribution of these submarines to Australia, which is increasing the range and duration of operation of its submarines compared to conventional submarines, as well as increasing the range of launching missiles from submarines. The new submarines will allow Australia to participate in joint task forces with the United States, as well as participate in anti-submarine warfare (ASW) against China's nuclear submarines, which are the main force of China's nuclear deterrence. Bilia claims that the United States and the United Kingdom are providing this technology to Australia because of the special relationship between them based on shared culture, language, and history, different from the United States ties to its other allies in this domain, such as South Korea, Japan, and India. The article also compares this situation to the supply of Polaris missiles from the United States to the United Kingdom

in the 1960s. Even then, the special relationship with the United Kingdom prevailed over the relationship with France or other NATO members. The United Kingdom was the only country that possessed Polaris missiles, to the chagrin of France, which also requested to purchase these missiles and was rejected. The United Kingdom even managed to convince the United States to allow it the independent use of missiles in the extreme case of defense against a nuclear attack.

## Section 2: The Russia-Ukraine War – Maritime Aspects

### *The Naval Campaign in the Russia-Ukraine War: A Roundtable Discussion*

In a discussion at the end of October 2022, researchers from The Maritime Policy & Strategy Research Center analyzed the naval campaign in the Russia-Ukraine war. They reviewed the main developments in the maritime arena during the war and discussed their implications for the war itself, lessons from the war regarding the nature of warfare in the maritime domain, and the status and importance of the Russian Navy in light of its performance in the war up until that point. The issues raised were the implication of the sinking of the “*Moskva*” cruiser in April 2022 on the status of the Russian Navy and the ability of the Russian Navy to operate on the Ukrainian coast; the disappointing performance of the Russian Navy (with the distinct advantage it had over the Ukrainian Navy on the eve of the war); the use of unmanned aircraft in the service of both sides in the maritime arena and unmanned vessels by Ukraine; the adaptation of the Russian Navy to the changing operational reality during the war – on a tactical level an adaptation was certainly noticeable, but on a strategic level no such adaptation could be observed – and the structural problems that led the Russian fleet to fail. Tzevy Mirkin, Ido Gilad, Shlomo Guetta, Mark Shipton, and Alex Grinberg participated in the discussion, which was moderated by Shaul Chorev. A timeline of the war’s landmarks, on land and in the maritime arena, updated until November 2022, appears as an appendix to this discussion. It was prepared by Ido Gilad.

### *The Russian Navy and the War in Ukraine*

Ido Gilad analyzes the Russian Navy’s actions during the war and claims that in light of the power relations between the navies, at the beginning of the campaign, Moscow expected the Russian Navy to play a central role in defeating its Ukrainian opponent. After the war began, the Russian navy was required to take control of the western part of the Ukrainian coast, from Odesa to the estuary of the Danube. Russia’s naval success included the blockade of Ukrainian ports that almost completely stopped commercial shipping, but this was interrupted 50 days later with the sinking of “*Moskva*”. The fear of a Russian takeover of Odesa led to defensive measures, including the self-scuttling of a destroyer for fear of it

falling into Russian hands. However, since the sinking of the “*Moskva*”, it has become clear to Russia that it will not be able to overwhelm Ukraine in the maritime domain since it is equipped with Western technologies, and the Russian navy has retreated to safer areas closer and the Russian coast. Russia planned to take over the home port of the Ukrainian Navy in Odesa but this did not happen. The takeover of Snake Island at the beginning of the war was part of the Russian effort to gain control over the shipping lanes in the region, as the island is an outpost of strategic control over shipping at a crucial junction in the southwest of the Black Sea. Later, Russia lost its control over the island.

### *Russia's New "Naval Doctrine" in the Context of the War in Ukraine*

Tzevy Mirkin briefly reviews Russia's new naval doctrine published on Russian Navy Day, July 31, 2022, amid the campaign between Russia and Ukraine. The doctrine replaced the previous doctrine from 2015, but even though it was published during the war in Ukraine, the war and the conduct of the Russian Navy didn't seem to influence its authors. The new doctrine divides the various arenas into three levels: “vital” arenas are related to the protection of Russia's sovereignty and territorial integrity and affect the socio-economic development of the country, including Russia's internal waters, its territorial waters, its exclusive economic zones, the Arctic domain, the Sea of Okhotsk and the Russian part of the Caspian Sea. "Important" arenas greatly affect Russia's economic development and national security, and include the oceans to which Russia has direct access, the Black Sea and the Sea of Azov, the eastern Mediterranean Sea, the Black and Baltic Seas straits, and the Kuril Islands, as well as international shipping lanes along the coasts of Africa and Asia. The other arenas are categorized as "other".

The threats to Russia are specifically defined in this document and focus on the United States and its allies, who, according to this account, wish to maintain their dominance, including in the oceans. The new doctrine indicates the need to ensure the ability of the Russian shipping industry to build large ships, including aircraft carriers, but contrary to many interpretations that regard this as an intention to build an aircraft carrier, according to Mirkin, this means that Russia admits that it cannot do so but needs to acquire this ability. The new doctrine was published against the background of the failure of the Russian navy in the war but does not reflect this reality. During the past decade, the navy was presented as one of the symbols of the revival of Russian power, and the political leadership had to take steps to demonstrate support and trust in the navy. It seems that the ceremony of signing the doctrine was intended to mask the operational failure in the war, meaning that its media importance exceeded its strategic importance.

### *The Regime of the Straits (Montreux Convention 1936) and the Russia and Ukraine War*

Glen Segell addresses the Regime of the Straits at the Turkish Straits (the Bosphorus and the Dardanelles) in the context of the war. From the beginning of the war, Turkey implemented the Montreux Convention, which established the regime of navigation through the straits under its sovereignty. Turkey has blocked the straits to war vessels, except for ships whose home port is in the Black Sea and to which the straits are their only sea access. The treaty does not allow fleets whose home ports are not in the Black Sea to pass through the Straits and to break the Russian blockade of Ukrainian ports. In July 2022, an agreement that allowed ships to pass through the Straits with grain essential for the nutrition of approximately 1.7 billion people around the world was signed. The agreement is renewed every 120 days so that its upholding remains on the global agenda. The United Nations Convention on the Law of the Sea (UNCLOS, 1982) recognizes the Montreux Convention since it is still in effect, therefore the navigation regime in the Straits continues to operate according to it. However, Turkey is careful in using this treaty so as not to create an opening for new negotiations that will also have to reflect the different technology and its different-sized ships since the treaty was signed. Changing this treaty can create an opening for other treaty changes.

### *The Impact of the Russia-Ukraine War on the Maritime Trade: Regional and Global Aspects*

Mark Shipton examines the changes in maritime trade following the war, including the naval blockade imposed by Russia on Ukraine's ports, which prevented grain trade critical to global nutrition. Three factors directly affect maritime trade traffic: the naval blockade of Ukrainian ports, the sanctions imposed on Russia, and the increase in insurance prices in the shipping market. Only about 6% of the world's maritime trade passes through the Black Sea, but this is made up of about 12% of the steel market, 26% of the wheat market, and 20% of the corn market. The opening conditions for the war gave Russia an overwhelming advantage over Ukraine in the maritime domain, but eventually, Russia suffered blows like the sinking of the "Moskva". The Russian naval blockade of Ukrainian ports diverted Ukrainian maritime trade and the trade of other landlocked countries that depend on Ukrainian ports to the ports of neighboring countries, mainly Romania and Bulgaria. This led to an increase in prices in their ports. The war also stopped the use of the railway line from China to Europe causing goods to be transferred to ships, which also increased prices. The sanctions on Russia have led major shipping companies to stop trading with it and also to increase storage prices in the West due to goods remaining in warehouses. This also led to an increase in world oil prices. At the beginning of the

war, merchant ships were damaged in the Black Sea, which led the International Shipping Organization to raise the level of risk in the region to the highest level, and this boosted insurance premiums. The prices of global goods, such as oil, wheat, and corn have also dramatically increased. A similar thing happened in the steel market since Russia and Ukraine are among the leading exporters of steel. The markets have not yet recovered from the Covid-19 pandemic, and the price increases accelerated the increase in inflation. The war and the subsequent rise in prices demonstrate the shortcomings of globalization since the entire market is affected by a war in one limited area.

### *Maritime Alternatives to the Russian Gas Import to Europe*

Nitsan Lifshits examines the alternatives available to European countries who wish to obtain energy sources that will replace Russian natural gas, some of which depend on it. In 2021, Europe consumed about 500 BCM of natural gas, of which 380 BCM was imported, with 45% of the imports coming from Russia. About 29% of the oil and coal that Europe imports are from Russia as well. European countries wish to diversify their energy sources. To reduce dependence on Russia, Europe can import more gas from other sources, use non-gas energy sources and cut back on consumption. The article presents the gas transmission routes from Russia to Europe – the pipeline through Ukraine and Belarus and the Nord Stream pipelines – and the alternative options, mainly in Algeria, the United Kingdom, Australia, and the United States – all of which depend on maritime transport. Algeria already supplies gas to Europe and has already increased its gas supply this year. One of the pipelines used to supply gas from Algeria to Spain passes through Morocco but due to the tension between Algeria and Morocco, the pipeline was closed. However, it is possible to increase the gas flow in the active pipes. Spain has liquefaction facilities that can allow for an increase in the amount of gas imported from the United States. The problem with the alternative options is that they are available to Western European countries, which are less dependent on Russian gas anyway, while Central and Eastern European countries have no short-term solution. The United Kingdom can increase the supply of gas to the Netherlands through the BBL pipeline and Australia can supply liquid gas, but given the situation in the global energy market and the fear of a shortage, there are those in Australia who prefer to store the gas rather than sell it. Europe can also optimize its gas consumption by reducing gas leaking or flaring in pipelines in its territory. It is possible to import larger quantities of liquefied gas from the United States to be gasified in Europe, for example in Germany which can build appropriate facilities. The problem is that some European countries cannot receive liquid gas and there is a real concern that this gap will affect their policy toward Russia as well as the united European front. Imports from Israel and Egypt do not amount to be significant for Europe. Libya is not a viable possibility because of the war there and Morocco itself imports gas from

Spain. For these reasons, the Mediterranean Sea is not a sufficient source of gas for Europe. The most realistic option is to import liquefied gas from the United States to the Iberian Peninsula, and from there to stream it through France to Central Europe, but the infrastructure is not sufficient at the moment, so this is not a relevant solution for the next two years.

### *The Iranian Strategy Following the War in Ukraine*

Alex Grinberg claims that Iran's most important lesson from the war is not to give up its nuclear option. The article analyzes the Iranian strategy as a whole. As it perceives it, Iran faces several major threats: a threat from the United States since 1979, threats from Israel and Saudi Arabia, which Iran believes supports Sunni jihadist movements, and a host of threats from its neighboring countries as a result of its breached borders. Iran's vital interests are protecting the regime from internal and external threats, and deterring its enemies, who it understands have superiority in terms of weapons. For this reason, Iran invests many resources in operating proxies, and in retaliating against enemies that succeed in harming it – thus, Iran invests in asymmetric capabilities, and the ability to project power towards regional players who would rather cooperate than confront it. Russia's invasion of Ukraine surprised Iran. Iran does not fully support Russia, and given the opposition of parts of the Iranian public to Putin's regime, its leadership has been cautious. Iran's main lessons from the war have been that nuclear deterrence must not be given up in order not to end up in Ukraine's situation and that missiles capable of carrying nuclear warheads are of strategic importance. Thus, it has concluded that military capabilities are more important than international support. As Iranian leadership sees it, the war justifies its current strategy and the nuclear program is a strategic asset. The missiles Iran provides to its emissaries are a strategic aspect of deterrence against Israel and it will not compromise on these two matters. Iran does not have a written grand strategy, including in the maritime domain, but its maritime strategy is subject to its overall considerations regarding the Gulf, and especially its opposition to the US presence in the Gulf. Since 2016, Iran has adopted an offensive strategy at sea, defense through offense. Iran's capabilities do not match its geopolitical and ideological ambitions and its naval maneuvers express intentions more than actual capabilities.

## **Section 3: Political Aspects in the Eastern Mediterranean**

### *The Delimitation Agreement between Israel and Lebanon – Challenges and Achievements*

Benny Spanier and Orin Shefler discuss the agreement between Israel and Lebanon mediated by the United States to delimit their maritime boundary. This agreement was

reached during a limited window of opportunity and established a borderline that would allow for the future development of a gas and oil field named Sidon (Kana) which is located across the borderline. This agreement reflects a pragmatic and applied approach and guarantees Israel's security interests as defined by the government, the National Security Council (NSC), and the IDF. The agreement was reached with an enemy state without a peace treaty and states that the maritime border is "a permanent and equitable resolution" while ending Lebanon's claims regarding maritime territories and resources located on the Israeli side. The main challenge of this agreement is that the buoy line near the coast is not agreed upon and its future will depend on a future agreement regarding the land border between the countries. This entails a risk for the future of the negotiations and may raise issues regarding the line of buoys in relation to the landline. As for the "Sidon" reservoir, which is understood to be located on both sides of the new line, the agreement includes a statement that Israel holds a share in the reservoir insofar as it is located beyond the maritime borderline, a matter that Lebanon opposed until the signing of the agreement. At this time, there is no agreement on the distribution of profits from the reservoir, contrary to what has been reported in the media. There is no agreement between the countries on the management of the reservoir, and thus the actions of any of them can affect the way the reservoir is developed and managed. Another challenge is the return and compensation that Israel will receive in practice. Since the reservoir is not mapped, it is difficult to know what its size is within Israeli territory, and in the future, Israel could demand significant compensation from what it is currently estimated to be entitled to, which could lead to tension between the countries. Israel has agreed not to operate the reservoir independently and will not receive gas or oil from it. The operation of the reservoir in the future does not appear in the agreement and remains open for discussion with the future operator. There is no understanding in the agreement about additional reserves that may be found on the line, but the parties have committed to sharing new information through the United States. The agreement stipulates that the United States will help settle disputes between the parties. Israel sees this as an achievement because the alternative is for Lebanon to turn to international institutions. Israel must finalize legislation of the Maritime Zones Law which has been under discussion since 2017, and which will outline the method of determining its maritime border. The expectation is that Israel will need to agree on the maritime border with the Gaza Strip and the "Gaza Marine" reservoir, and the agreement with Lebanon could be an inspiration for such an agreement. The agreement with Lebanon indicates that countries can come to an agreement in a maritime environment, even though they have difficulty doing so on land.



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### *From Sea to Shining Sea: The Reorientation of Turkish Foreign Policy in 2022*

Omri Eilat examines the changes in Turkish policy in the Eastern Mediterranean, including toward Israel. During the past year, Turkey has made a considerable effort to improve its relations with Israel, Egypt, and the United Arab Emirates to get closer to the United States. If in 2020 Turkey was the "troublemaker" in the Mediterranean, at the end of 2022 it was the "responsible adult" in the Black Sea. However, changing its approach does not mean waiving its claims regarding maritime borders. Russia's invasion of Ukraine improved Turkey's position in NATO when it blocked passage through the Turkish Straits to Russian warships according to the Montreux Convention. The Turkey-Russia relations consist of cooperation and conflicts in various arenas such as Syria and Libya, which did not prevent Turkey from leaning on Russia when it was unhappy with its cooperation with the United States, for example in the procurement deal for the S-400 and the withdrawal of Turkey from the F-35 project. These complex political relations have not undermined the economic relations between Turkey and Russia, especially in the energy field. But Turkey also has extensive ties with Ukraine, and the most well-known transaction in connection with the Russia-Ukraine war is the sale of the unmanned aircraft Bayraktar, which gave Ukraine a significant advantage in the field of UAVs against Russia, which uses Iranian UAVs. Thanks to its extensive ties with both sides, Turkey has become the ultimate mediator between Russia and Ukraine. When it comes to energy, while European countries are having difficulty finding a substitute for Russian gas, Turkey has become a reliable energy corridor. Turkey wishes to strengthen this position, a fact that guides its diplomatic efforts in the Mediterranean as well. Furthermore, it is interested in purchasing gas from Israel in relation to its position as Europe's southern energy corridor. Under the 36th Israeli government led by Naftali Bennett and Yair Lapid, relations were renewed and ambassadors were even reappointed, which indicates the desire of Turkish President Recep Tayyip Erdogan to reinstate political relations. Erdogan's conversation with Prime Minister Benjamin Netanyahu after his win in the November 2022 elections indicates that the trend continues, although it is too early to determine anything concretely. Israel made it clear, even before President Isaac Herzog's visit to Turkey in March 2022, that the renewal of ties with Turkey would not come at the expense of its ties with Greece and Cyprus, and Turkey has accepted this. Israel has accepted the fact that its relations with Turkey are due to a meeting of interests regardless of conflicting interests in other arenas, such as Turkey's position on the Palestinian issue.

### *Türkiye–Israel Collaboration and Energy Diplomacy*

This article by Oğuzhan Akyener and Abdullah Altun from the Turkish TESPAM Institute presents their position on the issue of energy in the Eastern Mediterranean given the war in Ukraine. At the moment, there are three major concerns, sufficient amounts of energy

resources, climate change, and "energy-hungry" countries like India and China. The current energy crisis causes countries to abandon the goals they set for themselves regarding green energy, and the war in Ukraine has only been worsening this crisis. According to TESPAM's analysis, the alternatives to Russian gas do not provide a satisfactory solution for Europe, not even in the short term. For this reason, Turkey can serve as an energy transition country for Europe, a process that requires energy diplomacy. Although the energy potential in the eastern Mediterranean is not as high as in the areas to its east, the development capabilities and the cost of transportation to Europe make it a preferred area. Israel and Turkey are in an excellent strategic position given the changes to the energy market. The authors call for close cooperation between Israel and Turkey, with Turkey being a transit point for energy to Europe that can be an alternative to transferring energy from Russia, and suggest that such a situation can help resolve conflicts in our region.

## Section 4: Energy in the Eastern Mediterranean

### *Producing Energy at Sea in a Net-Zero Economy*

Orin Shefler examines options and opportunities for energy production at sea to create a "net-zero" economy, that is, an economy without carbon emissions which is a pollutant and a major contributor to global warming and the climate changes the world is experiencing. As Israel diversifies its energy sources, the potential for the creation and production of cleaner energy from the sea will increase. During the transition period toward a net-zero economy, Israel needs not only to produce gas from the sea but also to consume new forms of energy that the sea can produce, such as wind energy, solar energy, and more. After diversifying its energy sources, Israel will be able to reduce the consumption of polluting resources. Each of these alternative sources has unique characteristics that may suit different parts of Israel's net-zero economy, but they must be reliably available to the public at a reasonable price and with minimal impact on the environment. According to the article, the government should create supply and demand scenarios for the different types of energy and prepare accordingly. It is already clear that there will be great demand for hydrogen and liquefied natural gas and the government should have concrete plans for maritime projects that will meet this demand. Furthermore, Israel needs to use the Mediterranean Sea for energy facilities that there is no space for on the coast, due to the increased density of the population. At the end of 2022 or the beginning of 2023, a tender for conducting a strategic environmental survey of Israel's economic waters should be issued, and depending on its results, the government could be able to act to produce the necessary energy sources. Since an increase in demand for liquefied natural gas is expected, there are already plans to establish floating facilities for its production

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in Israel's exclusive economic zone. It is also possible to extract hydrogen, which has a considerable market, from the sea. The transition to a net-zero economy will take time, but clearly, this is the future.

### *Egypt and its Exclusive Economic Zone (EEZ) in the Mediterranean*

Shlomo Guetta discusses Egypt's Exclusive Economic Zone (EEZ) in the Mediterranean. Egypt has signed agreements to establish an EEZ with Cyprus and Greece and has an understanding with Israel about their maritime border. At the same time, Egypt has been exporting gas to Turkey in increasing quantities despite the conflict between them in Libya and the tension between them since the ouster of Egyptian President Mohammed Morsi from the Muslim Brotherhood's Freedom and Justice Party in 2013. Egypt has built two natural gas liquefaction facilities in light of the growing demand for liquefied gas and thus has the ability to store liquefied gas. This gives it a great advantage in the face of the Russia-Ukraine war and Europe's energy crisis. To reach the goal of \$1 billion in gas revenues that Egypt has set for itself this year, it needs to reduce internal consumption and increase output or import gas from Israel to liquefy and then sell at a high price on the international markets. Egypt's gas reserves are found in its EEZ in the Mediterranean Sea. Gas reserves have increased eightfold in the last few years in comparison to 2010-2014 and are Egypt's biggest source of income after the Suez Canal. This is a logical reason for the massive buildup of the Egyptian navy in recent years. Israel should think about cooperation with Egypt on a commercial level and on a security level, such as in terms of security, protection, and dealing with threats from within and outside the region.

## Section 5: Maritime History

### *The Warning that Came from the Sea: Naval Intelligence in the Yom Kippur War*

Ehud Golan addresses the intelligence warning that was issued by navy intelligence and which was rejected by the IDF Intelligence Directorate, according to which war was expected in October 1973. The article presents the warnings that were transmitted and discussed and the fact that the Navy finally accepted the dominant assessment of Military Intelligence according to which war will not break out, though warnings to prepare for war were sent within the Israel Navy. The article explains the position of Navy Intelligence as professional Corps intelligence but also as an expert of Military Intelligence in the maritime domain, i.e., subordinate to the command of the Navy and professionally subordinate to the IDF Intelligence Directorate. While there was much intelligence information regarding the Egyptian navy, there was little data on the Syrian navy, which was smaller and perceived as a secondary threat. The article reviews the signs identified by the Navy's intelligence regarding the Egyptian preparations for war and discusses the

rejection of this assessment by Military Intelligence. The article presents the fact that the naval arena has operational characteristics that make it possible to receive early intelligence alerts compared to land and air arenas. On an organizational level, the Navy's intelligence was in a relatively inferior position in the intelligence hierarchy and did not receive the most sensitive information – unlike Air Force intelligence – and thus was more independent in its assessment ability. Although the previous wars (1956 and 1967) broke out following a naval move by Egypt – in both cases through the blockade of the Straits of Tiran – in the IDF the sea is considered a secondary arena and naval intelligence is not considered a provider of strategic intelligence.

### *Napoleon's Failure to Conquer the Land of Israel: Principles of Maritime Strategy, Then and Now*

Danny Segev and Benny Spanier examine strategic aspects of Napoleon Bonaparte's failed attempt to conquer Acre in 1801, and explain how the Royal Navy, which was dominant in the Mediterranean Sea, thwarted his plans and helped the Ottoman Empire defend Acre. In other words, it was the complete naval control of the Royal Navy in the eastern Mediterranean and its commitment to the Ottoman side that defeated Napoleon. The article presents several principles relating to the concept of naval control and according to them, analyzes Napoleon's journey up until his retreat. The article extrapolates from these findings to Israel's current maritime strategy and concludes that Napoleon was, and Israel today is dependent on supplies from the sea, requiring this maritime domain to be under their control.

## **Section 6: Crisis Management and Technology in the Maritime Domain**

### *Whole-of-Government Frameworks for Maritime Security*

Eleanor Dayan discussed the need to establish whole-of-government frameworks to address maritime pollution to better coordinate the various bodies and optimize responses to these incidents. The "Zefet Haseara" (2021 Mediterranean oil spill) event in February 2021 in which Israel's Mediterranean coastline was contaminated with tar from an unknown source, could have been handled better if the information that was available even before the event had been known to the authorities. The proposed frameworks should be the responsibility of a government ministry, should gather the relevant information and coordinate between the various relevant bodies to optimize the handling of maritime incidents. The goal here is to increase maritime security, and this concept can be interpreted as the prevention of environmental damage. Among the multitude of definitions for maritime security, it is clear that dealing with a maritime incident or

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threat requires the participation and cooperation of many private, governmental, and international bodies, knowledge of broad issues, and the ability to respond quickly to complex events. Coping includes identifying the incident, monitoring, and warning of its development, deploying forces and resources as a response as quickly as possible and finally assessing damage and creating a rehabilitation plan. This whole-of-government framework approach is designed to create a joint effort on the part of government entities and organizations to fully utilize existing resources in a coordinated response to an incident. Otherwise, each organization will focus on its own interests and goals. This approach aims to improve efficiency through the sharing of information, resources, and capabilities from each organization and should also reduce costs. Some countries have already established such frameworks and what they have in common are the size of their maritime domain and its national importance. Every country establishes an appropriate body to handle threats, constraints, and various characteristics of its maritime domain. The article presents the Singapore model and the British model as well as a comparison of New Zealand and Australia. Two lessons emerge from the international examples presented, the first is the importance of building a collection system from a variety of information sources and the second is the question of authority – is the body under the responsibility of one ministry, that will also finance it? And if it only coordinates between different bodies will they share the operational costs?

### *Cyber Threats to Maritime Platforms and Insights from Coping with the Covid-19 Pandemic*

Itai Sela addresses the cyber protection of operational computer systems installed on maritime platforms whose value – and damage costs – increased following the war in Ukraine, which has been pushing Europe to break away from its dependence on Russian gas. Since the outbreak of the Covid-19 pandemic, there has been an increase in cyberattacks on operational computer systems. In maritime platforms, a distinction must be made between the information technologies (IT) that help manage and transfer information between the platform and external parties such as company headquarters, ports, suppliers, and the like and the operational technologies (OT) that help perform the critical operations on the platform itself. These systems are particularly vulnerable because they are based on outdated operating systems that are no longer supported by the manufacturers with security and software updates. The purchase of up-to-date equipment can amount to hundreds of thousands of dollars in a commercial vessel and up to tens of millions of dollars in a maritime energy platform; for this reason, the owners of the platform avoid these purchases as much as possible. The cost increases even more because of the need to disable activity for a long period of time to upgrade the systems. The systems are connected to the Internet for much longer than before, which

causes prolonged exposure to potential cyberattacks. These attacks can come from the outside or through planting malware during the routine activity of staff members who unknowingly insert it into the systems they operate. Experiments have proven the degree of danger that a cyberattack can expose the platform to, including downtime and even collision with various objects that the platform operators will not know about because of a cyberattack to their systems. There are three approaches when it comes to protecting against cyberattacks, which can be paralleled to the approach to Covid-19: (1) Training and education of staff members for cyber protection, similar to educating citizens to wear masks, wash their hands and maintain social distance. (2) Separation of networks to reduce the possibility of a cyberattack, similar to quarantines during the outbreak of Covid-19, and monitoring solutions to alert against abnormal behavior following the intrusion of malicious code, similar to locating cellular devices and checks at border crossings. (3) Active protection software installed on all operational computer systems, which are, of course, equivalent to Covid-19 vaccines. Decision-makers are advised to examine the level of the cyber threat faced by each of the components of the maritime industry against the existing level of cyber protection and to adopt a cyber standard that will allow a threat to be measured and the required level of protection to be defined. It is recommended that regulation in the field become mandatory and that more rigorous inspections be carried out.

### *Disruptive Technological Changes in the Field of Shipping and Ports as an Opportunity for Israel*

Ehud Gonen claims that the shipping and ports sector is conservative and operates according to global regulation, and this is one of the reasons for its late digital revolution. International bodies such as the International Maritime Organization (IMO) are working to build a regulatory framework for new technologies, including autonomous technologies. As long as there is no regulation or technological advancement on the part of any particular company, the technological changes in the shipping world in recent years are an opportunity for Israel on a national level. There are three opportunities in this field: economic – autonomous shipping technologies as a driver of growth and employment (e.g. the unmanned aircraft industry, autonomous vehicles, autonomous shipping), regional – blue economy as a driver for regional cooperation in the Eastern Mediterranean and the Red Sea, and strategic – an opportunity for Israel to remove its maritime blindness, creating the possibility of greater Israeli influence in the international system. These economic opportunities can help Haifa and the northern district. The decision of the Ministry of Innovation, Science and Technology regarding the sea as a national resource among the five areas of national priority is an important start that requires budgetary backing and appropriate regulation. Regional cooperation: Cyprus is a potentially fruitful

party for cooperation for both sides. Cyprus depends on the sea for its existence and its shipping industry is several times more developed than Israel's. Israel-Cyprus relations have become closer in recent years, mainly around common interests in the energy field and Turkey as a common rival. The maritime border between Israel and Cyprus presents Israel with a border with the European Union. There are understandings regarding the Aphrodite-Yashi reservoir and there is an agreement to connect the power grids of the two countries with the longest submarine cable of its kind. Egypt is a key country in world shipping because of the Suez Canal through which about 10% of world trade passes. Israel and Egypt have a series of collaborations in the context of the blue economy, energy, and shipping technologies. The development of maritime technologies will renew disappearing knowledge in the field and increase Israel's soft power. Compared to the existence of six seaports and three energy ports, Israeli shipping is in decline. There are very few ships raising the Israeli flag and very few naval officers. In an emergency, ships will not enter Israel's ports.

### *Summary of Maritime Strategic Evaluation for Israel and Policy Recommendations*

Shaul Chorev concludes that 2022 was characterized by diverse challenges that influenced each other: the war in Ukraine, the effects of the Covid-19 pandemic, the Iranian nuclear program, the Chinese threat to Taiwan, signs of a slowdown in the global economy, inflation, the use of energy as a weapon, the uncertainty in the global food market, climate change and drought. The Middle East, from which the United States tried to distance itself in recent years, returned to center stage and all great powers attach great importance to it.

Insights into Israel's position towards the Russia-Ukraine war: Given recent developments, including Iran's increasing involvement in the war through the supply of UAVs to Russia that are used to attack the population of Ukraine, Israel could soon face pressure from the United States and its allies to end its neutral position concerning Russia and Ukraine. It is prudent that the new government formulate its position as soon as possible. At the same time, Israel must create new regional coalitions to prepare for a new world order and the upheavals it will bring, including in dealing with Iran. With regard to Turkey, Israel must make it clear that any progress in relations will not come at the expense of its relations with Greece, Cyprus, Egypt, and the United Arab Emirates. Israel should support a political solution to the maritime border dispute between Turkey and Greece, and not only within the framework of the Sea Convention rules.

The Russia-Ukraine war in the naval arena has an impact in two areas: the cessation of grain supply from Ukraine and Russia, and the naval warfare that led to the sinking of the "Moskva", which changed the nature of naval combat and how fleets operate. Our insight

is that the authorities in charge of the maritime domain, including the Israel Navy, must learn the lessons of the naval campaign in the war, internalize the changes in combat in the maritime domain, and adapt the structure of the naval force and its operating doctrine. Asymmetric and hybrid warfare was used in this war, as well as unilateral closure of international shipping lanes for the passage of military vessels (a matter that Israel has also been affected by more than once in the past), as well as damage to large vessels with large crews. We need to develop an appropriate response to threats that are quickly developing, such as attacks by UAVs on vessels, alongside rockets and missiles.

The government's handling of issues in the maritime domain: The committee of the director generals of government ministries recommended establishing a directorate for the economic development of Haifa Bay in the Prime Minister's Office. In July 2022, the Israeli National Center of Blue Economy was established in Haifa. The National Council for Civilian Research and Development determined five areas of national priority for the next five years. Maritime Policy & Strategy Research Center and the School of Marine Sciences at the University of Haifa presented to the committee three issues in the field of "the sea as a national resource" on behalf of the National Council for Civilian Research: Development of artificial islands, blue economy, and aquaculture. "The Sea as a National Resource" was chosen as one of the five priority areas. This important decision is backed by a government budget. The new government must promote these issues.

For five years, a 2017 proposal for the Maritime Zones Law has been on the Knesset's Economic Affairs Committee's table in preparation for a second and third call but has not yet been approved. Without this law, Israel's governance in its maritime domain is compromised. The new government must formulate a policy and strategy for Israel's maritime domain.

The development of Israel's gas resources and their protection: given the cessation of the flow of Russian gas to Europe and the search for alternatives, it is expected that Israel will export more gas to Europe through Egypt (for liquefaction). Israel, Jordan, the United Arab Emirates, and the United States signed an agreement to build a solar power plant in Jordan and a water desalination plant in Israel so that Jordan will supply Israel with electricity and Israel will supply water in return. Both parties will benefit from this deal. With the signing of the maritime agreement with Lebanon, the Ministry of Energy issued a tender for gas exploration in Israel's EEZ south of the maritime border line. Our conclusion is that alongside the search for alternative energy sources, the gas fields should continue to be developed. The funds of Israel's Wealth Fund should be directed to the training of scientific and technological personnel who will be able to deal with the challenges expected for Israel when it comes to the field of energy.



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Security considerations for the rigs in Israel's gas fields led to the rigs being brought closer to Israel's shores, but the Navy purchased 6 "Saar" assault ships to protect distant rigs. It seems that there is a flaw in the planning of the location of the rigs. In addition, the explosion in the Nord Stream pipelines in the Baltic Sea indicates that we need to prepare for new and complex threats. It is also necessary to prepare for the protection of the underwater communication cables that connect Israel and Europe.

The investigation into the purchase of the submarines by the State Commission of Inquiry headed by former Supreme Court President Judge Asher Grunis is being conducted slowly, and with the new government, some fear for the fate of this commission. Our recommendation is that the current committee continues its work and submits its report as soon as possible since it is essential to Israel's defense establishment and to the Navy in terms of lessons for future procurement transactions.

Demarcation of the maritime border with Lebanon: in our opinion, the established maritime border meets Israel's security interests, as defined by the government, the NSC, the IDF, and the Navy. This is the first border agreement with an enemy country, although it is important to note that it is not a peace treaty. The agreement states that the line will be "a permanent and equitable resolution of [the parties'] maritime dispute" and adds that Israel's return will be determined later on and that the development of the disputed area will not begin before there is an agreement that includes this return. Our insight is that in the maritime domain, there is room for creativity that is not possible on land and in the air. The maritime domain will allow Israel to expand its infrastructure and cooperate with its neighbors. The agreement with Lebanon should start a process of thinking about the maritime domain and how to utilize it. There are two main goals at this stage: (1) to create a policy and strategy regarding the maritime domain, its borders, and plans for its utilization. Israel needs to regulate its thinking about the maritime domain for years ahead. It is necessary to determine the point on the coast from which the maritime border with Lebanon begins (this remains unclear in the agreement and could become a stumbling block in the future), and to establish a policy regarding the dispute with the Palestinians over the area across from the Gaza Strip. It is also necessary to think about the location of the gas rigs, with their protection in mind. (2) Understanding that the maritime domain is unique and enables cooperation that is not possible on land, even with an enemy state.

The dangers to freedom of navigation at chokepoints are real, as became clear this year when Turkey blocked the Bosphorus and the Dardanelles to the passage of warships in the context of the Russia-Ukraine war and in regard to the Houthis activity in the Bab el-Mandeb Strait. During the year, Iran also attacked several ships that had connections to Israel on the high seas. In the Straits of Tiran, which returned to the sovereignty of

Saudi Arabia, Israel's legal position in the context of freedom of navigation has worsened. Saudi Arabia has announced that the provisions of the peace treaty between Israel and Egypt regarding Tiran do not apply to it and the international observing force operating in the islands to secure the agreement is now operating as a foreign force in its sovereign territory. The Maritime Policy & Strategy Research Center estimated as early as 2017 that for Israel this situation means a return to the pre-Six-Day War reality. During the visit of US President Joe Biden to our region in July 2022, it was reported that the force will move to Sharm el-Sheikh and continue to operate through remote observation systems. It is not yet known whether the United States gave any guarantees to Israel regarding the freedom of navigation in the Straits and if so of what nature, but given the unstable relations between the United States and Saudi Arabia, it is prudent to examine these fragile agreements in the Middle East. Israel needs to think about enhancing its power in the Red Sea, the importance of which for Israel and in general is increasing.

In terms of ports, efforts should be made to optimize the activity of the ports for general cargo ships and bulk carriers. When experience is gained with private ports, the government will need to decide whether to continue the privatization process and privatize the Ashdod Port or leave it as a single port under government management.

The former government promoted a plan to improve Israel's position as a start-up country in the maritime domain and the Minister of Innovation, Science and Technology should adopt the plan and ensure that the budgeting for this plan continues. A multi-year work plan should be drawn up as well.

In terms of protection against cyberattacks in the maritime domain, our opinion is that recommendations in this field become mandatory. It is also necessary to increase supervision of rig owners and energy companies operating in Israel's sovereign waters and its EEZ and to build a multi-system and interagency plan that will enable dealing with possible cyberattacks that could end in large-scale damage to human life, the environment, the economy, and security.

In recent years, various countries are beginning to consider climate change not only on a civil level but also on a security level. In the West, it is considered an existential security threat. Israel, whose rate of warming is double the world average, is lagging when it comes to preparing for the coming crisis. The climate crisis should be perceived as a threat to Israel's national security. Israel needs to establish clear and realistic goals for reducing emissions and back up these goals with a budgeted action plan.

In the field of education and academic research, the University of Haifa leads the Mediterranean Sea Research Center of Israel (MERC) and in 2022 has received a budget

from the higher education Planning and Budgeting Council (PBC) to support the center for the next two years. The PBC has obliged the partner institutions to participate in the funding, but this is a very modest budget that does not allow for the implementation of the committee's recommendations, led professionally by Prof. Zvi Ben Avraham, to promote marine sciences research. The state must increase its investment in the field of marine sciences in higher education institutions. The Wealth Fund is a source that can be used to increase funding in this context.

The master's degree program "National Security and Maritime Strategy" is an affiliate program of the Division of International Relations at the School of Political Sciences at the University of Haifa. Five years after it began, it is considered a prestigious program. For the program to be able to train a reserve of researchers in the field, it should become independent and have a closer relationship with the School of Marine Sciences at the University of Haifa. Unfortunately, very few naval officers study in the program and expand their education in the maritime field. This affects the level of officers; some of whom advance to senior ranks.

Finally, ten policy recommendations appear in the evaluation summary:

1. Formulating a comprehensive maritime policy for Israel.
2. Formulating Israel's foreign policy for the Eastern Mediterranean and the Red Sea.
3. Improving efficiency of Israeli shipping and ports.
4. Israeli preparation and readiness for civilian emergencies at sea.
5. Developing and using energy resources at sea and protecting the environment.
6. Moving infrastructures from land to sea.
7. Developing Israel's human infrastructure to manage challenges in its maritime domain.
8. Promotion and regulation of maritime law and regulations.
9. Israel as a maritime start-up nation.
10. Preparing for the effects of climate change on Israel's maritime domain.



# **Section 1: The Maritime Domain – Strategic Perspectives in the Global Arena**

The articles in this section review the global arena, which this year too, was highly dynamic. The most important event this year – the Russo-Ukrainian War, and especially its maritime dimension – is discussed in Section 2. In this section, the war and its implications are discussed at length in the context of broader developments in the political and economic world presented by the opening article, which also traces developments in several of the world’s leading navies. These developments have taken place in the fields of overall and maritime strategy, resource allocations, and naval operations throughout the year. The second article discusses the maritime aspects of China’s Belt and Road Initiative through an examination of Chinese investment in shipping and ports around the world. The third article discusses the trilateral alliance between Australia, the United Kingdom, and the United States (AUKUS), which was signed in September 2021, with significant political and security implications in the Indo-Pacific theater; the article argues that the foundation for this alliance is the special relationship between its three partners, in terms of their shared culture, language, and history.



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## Global Developments in the Maritime Domain

*Shaul Chorev*

### Introduction

As in previous years, the situation evaluation in this report focuses on the Eastern Mediterranean and the Red Sea. However, it is impossible to disconnect the events transpiring in these two arenas from recent global developments, particularly in the maritime domain, due to the close links between global events and their impact on the regions near Israel.

The year 2022 was marked by several notable events and processes that also affected the maritime domain, including:

- The decline of the COVID-19 pandemic, which was accompanied by a sharp rise in demand, causing delays in the global supply chain;
- The military conflict between Russia and Ukraine and its global implications;
- Sanctions and boycotts imposed by the various parties involved in the Ukraine conflict and their impact on the global economy;
- The strengthening of NATO's eastern front in response to the Russian invasion;
- The process of Sweden and Finland joining NATO;
- The deterioration of U.S.-China relations;
- Strengthening the balancing strategies against China in the Indo-Pacific region;
- Lack of progress on negotiations regarding Iran's return to the nuclear agreement and its continued attempts to become a nuclear threshold state;
- Continued conflict between Turkey, Greece, and Cyprus in the Eastern Mediterranean;
- The continuation of the economic and political crisis in Lebanon and its implications;
- The signing of the Maritime Border Delimitation Agreement between Israel and Lebanon, brokered by the United States;
- Unprecedented natural disasters resulting from climate change caused by human activity.

The global security agenda in 2022 was dominated by the war between Russia and Ukraine and the escalating security tensions between China and the United States. Russia's invasion of Ukraine on February 24, 2022, shocked the international community, especially in light of repeated Russian warnings suggesting the possibility that they would use nuclear weapons in certain extreme situations. The Western response to the Russian

invasion focused on providing military aid to Ukraine and imposing economic sanctions against Russia. According to the Stockholm International Peace Research Institute (SIPRI), the consequences of the war will have far-reaching effects, including a severe impact on global food security, as both Russia and Ukraine are major food producers. Significant changes in European security arrangements (namely, NATO) are taking place, which will lead to changes in political arrangements and in national strategies of countries and blocs. The opposition to Russian actions in Ukraine was widespread but not universal, as reflected by the fact that 35 countries abstained from supporting the UN's resolution in March 2022 to condemn Russia's invasion of Ukraine. Some countries challenged the Western narrative's emphasis on liberal and ethical issues during the crisis, especially regarding the Russian invasion and its impact on the civilian population. It should be noted that China, which reaffirmed its close ties with Russia in early February 2022, was among those abstaining from the UN vote.<sup>1</sup>

Following Russia's invasion of Ukraine, a series of European NATO member countries announced a significant increase in defense expenses. To date, 29 European countries have committed to increasing their defense expenses by a total of over \$209 billion – a sum that is likely to increase further. The European Commission announced that investments will be required to replenish low stock levels of military equipment, and Joseph Borrell, the EU's High Representative for Foreign Affairs and Security Policy, called on the bloc to "spend together, more, and better" on its armed forces.<sup>2</sup>

The relationship between China and Russia has changed in recent decades, from overt animosity during the Cold War to collaboration against the West today. Although there is no formal alliance between the two countries, there is an unofficial agreement between them to coordinate diplomatic and economic actions aimed primarily against the United States. This informal alliance is also based on personal ties between the two heads of state, Vladimir Putin and Xi Jinping. President Putin visited President Xi in Beijing in early February 2022 (prior to invading Ukraine) and in a joint statement, the two emphasized that the friendship between their countries was limitless. The collaboration between them is unconditional and the two expressed a shared aversion to the United States and NATO. Three weeks later, Putin invaded Ukraine. The war in Ukraine, particularly Russia's declaration annexing the territories it occupied in Ukraine after conducting fabricated "referendums" in them, has created economic and diplomatic dilemmas for China. However, this did not change the fundamental alignment of autocratic interests

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<sup>1</sup> Dan Smith, [Introduction: International Stability and Human Security in 2021, The War in Ukraine](#), *SIPRI Yearbook 2022*.

<sup>2</sup> Nan Tian, Diego Lopes da Silva and Alexandra Marksteiner, [The Great Global Rearmament](#), *Foreign Affairs*, July 22, 2022.



and values driving the Chinese-Russian relationship. At the same time, the differences in approaches between the two regimes is worth noting. While Russia is willing to destabilize the world order through actions such as the invasion of Ukraine, China prefers to maintain the stability required to protect its economic interests worldwide by cultivating a reputation for being prudent.<sup>3</sup> Both China and Russia view the United States' support for democracies in their respective regions and for those fighting oppression and authoritarianism the two countries as a U.S. effort to expand its influence and ultimately topple their regimes. Both Xi and Putin also consider the network of alliances established and maintained by the United States, such as NATO and the Quad in the Indo-Pacific, as direct challenges to the security of their countries and regimes. It should be borne in mind that President Xi has already secured his third term as Chairman of the Communist Party. In this context, the backlash against the United States following the visit of then-U.S. Speaker of the House, Nancy Pelosi, to Taiwan in August 2022 helped Xi distract the Chinese public from other troubling problems in China. However, it seemed that he was not willing to risk jeopardizing his chances of reelection by a possible military conflict that could arise from the Taiwan crisis.<sup>4</sup>

In this context, the issue of human rights is regaining a central position in international relations. The climate crisis is expected to be at the top of the global agenda as the greatest challenge facing humanity in the current era, as a barometer of norms in the international arena, and as a central basis for both cooperation and competition.

Based on the dramatic changes taking place around the world, it is becoming evident that the conventional concepts of the political left and right are losing their meaning and being replaced by a new type of shared ideology. For example, after being elected, U.S. President Joe Biden turned his back on the neoliberal legacy of his predecessors and supported increased government investment in stabilizing and developing the economy, regulation, and taxing giant corporations. So far, his presidency has been characterized by efforts to forge bipartisan alliances across the four areas of clean energy, investing in the working class, a commitment to social justice, and investing in infrastructures. The series of victories he secured in Congress in the summer of 2022 led to a large investment of resources in the fields of climate change, healthcare, transportation infrastructure, and taxation.<sup>5</sup>

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<sup>3</sup> David Shullman and Andrea Kendall-Taylor, [Best and Bosom Friends: Why China-Russia Ties Will Deepen after Russia's War on Ukraine](#), *CSIS Briefs*, June 22, 2022.

<sup>4</sup> Ted Gover, [Xi Jinping Will Not Want to Jeopardize Third Term Prospects with Armed Conflict over Taiwan](#), *CAN*, IG Bloomberg Media Studio, August 11, 2022.

<sup>5</sup> Peter Baker, [Biden Is on a Roll That Any President Would Relish. Is It a Turning Point?](#), *New York Times*, August 8, 2022.

## The Competition between the Superpowers the Rise of China as a Global Power

China continues to pursue its goals of becoming a global power, preserving what it sees as its territory and establishing its importance in regional affairs by building a superpower-class military, which could undermine the stability and norms of international relations. China's military commitment includes a multi-year agenda of comprehensive military reform initiatives. Combined with the unprecedented expansion of its military, the question arises as to what use will be made of this force, especially in light of China's increasing aggressiveness in all matters relating to its territorial claims in the South China Sea and Taiwan.

The visit of then-U.S. Speaker of the House Nancy Pelosi to Taiwan in early August 2022 raised strong opposition from Beijing and concerns in the United States and throughout the Indo-Pacific region about the impact on regional security of the visit and the Chinese military's response. Following the visit, Beijing launched large-scale military exercises, leading to public debates about a situation that had already been experienced three times before and therefore became known as the "Fourth Taiwan Strait Crisis". Both China and the United States tried to control the narrative regarding who caused the crisis. China repeatedly emphasized Pelosi's high position in the political hierarchy of the United States in an attempt to define her visit as a provocation. Chinese Foreign Minister Wang Yi stated: "The U.S. side claimed that China is escalating the situation, but the basic facts are that the United States first provoked China on the Taiwan question and blatantly violated China's sovereignty and territorial integrity".<sup>6</sup> The Biden administration argued that China's military exercises, including short-range ballistic missile tests over Taiwan, represented a "manufactured" crisis and an overreaction to a routine congressional delegation visit. U.S. Under Secretary of Defense for Policy, Colin Khal, stated in regard to Pelosi's trip that: "Nothing about the visit changed one iota of the U.S. government's policy towards Taiwan".<sup>7</sup>

The tension over the Taiwan Strait dominated much of the annual meeting of the Association of Southeast Asian Nations (ASEAN) foreign ministers, as well as the ASEAN Regional Forum in Cambodia, attended by both U.S. Secretary of State Antony Blinken and Chinese Foreign Minister Wang Yi. As expected, ASEAN ministers issued a joint statement expressing concern and calling for dialogue without mentioning China or Taiwan by name.

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<sup>6</sup> Jude Blanchette, Charles Edel, Christopher B. Johnstone, Scott Kennedy, et al., [Speaker Pelosi's Taiwan Visit: Implications for the Indo-Pacific](#), *Center for Strategic & International Studies (CSIS)*, August 15, 2022.

<sup>7</sup> Ibid.

However, this does not mean that individual countries in Southeast Asia are not concerned about China's aggressive response. The consensus among the elites and a large part of the public in Southeast Asia is that Pelosi's visit may have been ill-timed or even harmful. However, China's response was unusual in its intensity, forcing the United States to stand firm and not cancel the visit. Philippine leaders are beginning to realize that they, too, are likely to be involved in any conflict over Taiwan, whether they like it or not. It should be noted that the northernmost islands of the Philippines can be seen from Taiwan, and some of the military exercise areas declared by China were within the Philippines' Exclusive Economic Zone (EEZ). This led the United States and the Philippines to conduct talks for the first time regarding their respective expectations in the event of a Chinese invasion of Taiwan. This is part of a modernization process their alliance is undergoing, which began with last year's bilateral strategic dialogue and includes ongoing negotiations on new defense guidelines, a comprehensive military information agreement, a new dialogue on maritime security, and other security issues. In early November, Philippine authorities announced their intention to accelerate the implementation of the 2014 Enhanced Defense Cooperation Agreement, which allows American troops to be stationed for extended periods and to access local military bases. The Philippine government also announced that it was conducting talks with Washington regarding additional sites to be covered by the Enhanced Defense Cooperation Agreement, including areas near Taiwan and the disputed South China Sea.<sup>8</sup>

China has also expanded its involvement in the Middle East through its "grandiose and flagrant penetration into Saudi Arabia, which has always been defined as American territory".<sup>9</sup> In early December 2022, the Chinese president visited Saudi Arabia and held a tripartite summit with Saudi Arabia and the leaders of the Gulf countries, as well as a separate and more comprehensive Arab summit. During the visit, President Xi signed a comprehensive strategic agreement between the two countries and agreements worth tens of billions of dollars. This alliance threatens the United States' dominance that prevailed not only in Saudi Arabia but throughout the Persian Gulf. Although Saudi Arabia presented the agreement as being part of the joint effort to integrate King Salman's 2030 vision with China's Belt and Road Initiative, official data shows a growth of more than 380% in the trade volume between the countries between 2016 and 2020, mainly due

<sup>8</sup> Cliff Venzon, [Philippines to Accelerate U.S. Defense Deal on Base Access](#), *Nikkei Asia*, November 15, 2022.

<sup>9</sup> Tzvi Bar'el, "[The Distancing from the U.S. Pushed Saudi Arabia to Tighten its Relations with China](#)", *Ha'aretz*, December 16, 2022 (Hebrew).

to a sharp increase in Saudi oil exports to China. In 2021, the total exports amounted to approximately \$44 billion.<sup>10</sup>

The Biden administration's official National Security Strategy (NSS) was published in October 2022. The document outlines the president's priorities at the start of a crucial decade of global challenges ahead. The most urgent strategic challenge facing the United States stems from regimes that combine authoritarian governance with revisionist foreign policies, referring to Russia and China, which pose a challenge to peace and stability. According to the document, the United States will prioritize maintaining a sustained competitive advantage over China while restraining Russia, which is still considered a dangerous country. Russia is defined as an immediate threat to the free international system because it utterly disregards the fundamental laws of international order, as evidenced by its aggression against Ukraine. China, on the other hand, is defined as the sole competitor that has the intention of reshaping the international order and increasing its economic, diplomatic, military, and technological power in pursuit of this goal. Another significant challenge presented in the document involves dealing with transnational phenomena, such as climate change, food insecurity, infectious diseases, terrorism, energy shortages, and inflation. Beyond that, the strategy focuses on local investments to maintain the United States' competitive advantage, modernizing and strengthening the military, and creating coalitions to deal with the influence of its adversaries.<sup>11</sup>

The Biden administration has continued to restore and improve relations with its partners in the European Union and NATO following the damage caused by the Trump administration. The Russian conflict in Ukraine undoubtedly contributed to both sides recognizing the need to strengthen and even expand the alliance. In August 2022, the United States Congress approved the addition of Sweden and Finland as new members of NATO, which involved convincing Turkey to remove its objections to their accession. At the NATO summit of leaders held in Madrid in June 2022, the organization decided to increase its readiness level to 300,000 soldiers in response to the Russian invasion of Ukraine.<sup>12</sup>

At this summit, as part of the comprehensive dialogue held around the Russian invasion, two topics stood out in particular and were at the heart of the summit's discussions. These were the inclusion of Asia Pacific countries in the discussions and the increased investment in emerging and disruptive technologies (EDTs). NATO adopted the 2022

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<sup>10</sup> Ibid.

<sup>11</sup> [Biden-Harris Administration's National Security Strategy](#), *The White House*, October 2022.

<sup>12</sup> Jordan Fabian and Jenny Leonard, [Biden Returns to Drama Back Home After Success of NATO Expansion](#), *Bloomberg*, June 30, 2022.

Strategic Concept document, which reaffirms NATO's values and objectives.<sup>13</sup> The Strategic Concept document has been updated every ten years since the Cold War to reflect the security environment assessment and provide a roadmap for military and diplomatic development. Among the changes made this year, it was necessary to clarify how NATO countries operate and invest in their long-term goals to diversify their partnerships and expand their military toolkit, while ensuring a proper foreign relations system with China and reducing dependence on the United States.<sup>14</sup> The strategic document identifies Russia as the "most significant and direct threat" and China as a "systemic challenge". There is a shared understanding among NATO member states that Russia cannot be dealt with in isolation from China. China has expanded its military support for Russia, created dependency in the global supply chain, and exerted regional dominance by increasing its military exercises. NATO members declare that they will continue to work towards just, inclusive, and sustainable peace, and remain a stronghold for a rules-based international order. The document highlights the deterioration in the international relations system and the uncertainty this creates. It points out that the Russian Federation's aggression against Ukraine has shattered the peace and seriously altered the global security environment. The organization emphasizes that a strong and independent Ukraine is vital to the stability of the Euro-Atlantic region and notes the need to continue to address the ongoing threat of terrorism in all its forms and expressions. Increasing instability, strategic competition, and progressive authoritarianism challenge the interests and values of the organization. Therefore, NATO sees it as its obligation to cooperate in the Indo-Pacific region through agreements and alliances such as the ones between the United States, the United Kingdom, and Australia (AUKUS and the Quad).<sup>15</sup>

NATO's main missions according to the Strategic Concept document are:

1. Defense and deterrence;
2. Crisis prevention and management;
3. Cooperative Security.<sup>16</sup>

The Quadrilateral Security Dialogue (Quad), which includes the United States, Australia, India, and Japan, was established to cooperating following the 2004 tsunami in the Indian Ocean and is not a formal alliance. In 2021, the group strengthened its ties due

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<sup>13</sup> [NATO 2022 Strategic Concept](#), Adopted by Heads of State and Government at the NATO Summit in Madrid, June 29, 2022.

<sup>14</sup> Antara Vats, [Going Beyond the Conventional: NATO Summit 2022](#), *Observer Research Foundation – ORF*, July 14, 2022.

<sup>15</sup> *NATO 2022 Strategic Concept*, p. 1.

<sup>16</sup> *NATO 2022 Strategic Concept*, pp. 7–10.

to the increased shared concern of the leaders of the four countries regarding China's assertive behavior in the region, leading them to propose a constructive framework for cooperation. It should be noted that the countries of the Pacific are currently at the center of a continuing geopolitical competition between the United States and China. The Indo-Pacific region spans two oceans and several continents, making it important to United States' maritime interests. Economically, the Indo-Pacific region is a center of global trade and commerce, making it a potential area for economic growth for the countries in the region, where 65% of the world's population, 63% of the global GDP, and 46% of the world's trade in goods are located.

In February 2022, the White House published the United States' Indo-Pacific Strategy document, which opened with the words of President Biden: "The future of each of our nations – and indeed the world – depends on a free and open Indo-Pacific enduring and flourishing in the decades ahead".<sup>17</sup>

The document states that the future of the region depends on the actions we take today, and that the crucial decade ahead will determine whether the region's countries can cope with and address expected climate changes, among other things. In addition, the region's countries need to examine how the region is recovering from the coronavirus pandemic, which was a once-in-a-century event, and decide whether they can uphold democratic principles of mutual respect, openness, and transparency. The United States expressed hope that together with its partners in the region, it will be able to contribute to the well-being of all the world's countries and to strengthen and prepare for the challenges of the 21<sup>st</sup> century, while taking advantage of opportunities to make the Indo-Pacific region prosperous and strong.

The document focuses on the following topics:

1. Promoting a free and open Indo-Pacific;
2. Building connections within and beyond the region;
3. Driving Indo-Pacific prosperity;
4. Bolstering Indo-Pacific security;
5. Building regional resilience against transnational threats expected in the 21<sup>st</sup> century.

On his first trip to the region since taking office on May 24, 2022, President Biden met with the leaders of the Quad in Tokyo, which was in fact the first personal meeting between the group's leaders since the war in Ukraine had begun. The latest security agreement between China and the Solomon Islands was also on the agenda, as well as

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<sup>17</sup> [Indo-Pacific Strategy of the United States](#), *The White House*, February 2022.

trade, technology, and climate change. At the end of the meeting, the four countries presented a maritime initiative to combat illegal fishing and pledged to invest over \$50 billion in infrastructure development in the Indo-Pacific region as part of their goal of addressing China's increasing influence in the area. The leaders of the countries noted in their joint statement that they "commit to work tirelessly to deliver tangible results to the region".<sup>18</sup> It should be emphasized that the Russian invasion of Ukraine jeopardized the group's unified front, as India, which has close ties to the Russian Federation, opposed the other partners' calls to condemn the war.<sup>19</sup> China reacted to the meeting by describing the group as an "Asian NATO", although the four countries did not sign a mutual defense agreement and only deepened their military, economic, and diplomatic ties. However, China's increasing influence in the small scattered island countries of the Pacific Ocean continues to raise concerns for the United States. A tracking of Chinese activity reveals that Chinese actors are operating slowly and often quietly in these countries and attempting to increase their dependence on China by funding infrastructure projects and conducting persuasive diplomacy among influential actors in these countries. The leak of an economic and security agreement exposed China's intentions of signing ten Pacific Island countries onto a deal that could fundamentally shift the balance of power in a region that comprises almost a third of the world. Chinese Foreign Minister Wang Yi embarked on an unprecedented and outstanding trip between May 26 and June 4, visiting eight countries throughout the Pacific Ocean to offer economic assistance packages that would dramatically expand China's security influence in the region. Wang landed in the Solomon Islands, then went on to Kiribati and Samoa, and later to Fiji, Nauru, Tonga, Papua New Guinea, and Timor-Leste. This visit took place despite the ongoing COVID-19 pandemic that is still raging in some islands due to dysfunctional healthcare systems, and therefore they are still closed to visitors.<sup>20</sup>

Regarding the Eastern Mediterranean, during his visit to Israel and Saudi Arabia in July 2022 and in his meeting with the Gulf leaders in Saudi Arabia, President Biden stated that the United States' commitment to the Middle East is based on five principles: partnership, deterrence, diplomacy, integration, and values.

Partnership: The United States will support and strengthen partnerships with countries that have signed onto the rules-based international order and ensure that these countries can defend themselves against external threats.

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<sup>18</sup> [Quad Joint Leaders' Statement](#), *The White House*, May 24, 2022.

<sup>19</sup> [The Quad: The origins of the Quadrilateral Security Dialogue](#), *The Week*, May 25, 2022.

<sup>20</sup> Kate Lyons, [A Pivotal Moment: Pacific Faces a Choice Over China that Will Shape it for Decades](#), *The Guardian*, May 27, 2022.

**Deterrence:** The United States will not allow foreign or regional powers to endanger the freedom of navigation through the waterways of the Middle East, including the Hormuz and Bab el-Mandeb Straits, and will not tolerate any country's efforts to control another or the region through the deployment of military forces, invasions, or threats.

**Diplomacy:** The United States will not only aim to deter threats to regional stability, but will also work to reduce tensions and resolve conflicts wherever possible through diplomacy.

**Integration:** The United States will build political, economic, and security relationships with its partners wherever possible, while respecting the sovereignty and independent choices of each country.

**Values:** The United States will always advance human rights and the values enshrined in the UN Charter.<sup>21</sup>

After prolonged negotiations between Israel and Lebanon, mediated by the United States, an agreement was reached regarding the demarcation of the maritime border. The maritime agreement primarily focuses on: establishing the status quo of the existing maritime boundary near the coast (the "buoy line"); setting a permanent maritime border between Israel and Lebanon from the end of the buoy line to the edge of the EEZ; acknowledging that the agreement is permanent and equitable and marks the end of the conflict over the disputed maritime area; and regulating the development of the cross-border reservoir in the disputed maritime area. The agreement is expected to enable Lebanon to complete the negotiations of recent months over its supply of gas from Egypt via Jordan and Syria to Lebanon, thereby easing the severe electricity supply crisis in the country. In addition, in the short to medium term, Lebanon will probably seek to leverage the agreement in order to join the energy market by exploring the potential energy reserves in the depths of the sea in the Kanah field. For Israel, the agreement removes doubts concerning the development of the Karish field due to the risk of potential instability or escalation, and Israel may also benefit from the wells found in the Lebanese Kanah gas field, which is shared by both countries.

On the two-year anniversary of the Abraham Accords, which normalized diplomatic relations between Israel, the United Arab Emirates, Bahrain, and Morocco, and raised hopes that have not yet materialized regarding Sudan, new opportunities for security cooperation have emerged, especially between Israel, Bahrain, and the UAE, who share a similar perspective on the security threat Iran poses to the Middle East. The Negev Forum, which convened in Sde Boker in the spring of 2022, included Egypt in

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<sup>21</sup> [Fact Sheet, The United States Strengthens Cooperation with Middle East Partners to Address 21<sup>st</sup> Century Challenges](#), *The White House Press Release*, July 16, 2022.



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the Abraham Accords coalition and suggested additional options for cooperation on shared interests, including energy, food and water security, healthcare, and other issues. However, cooperation between Israel and its Arab partners has not succeeded in advancing the relationship between Israel and the Palestinians, despite the fact that the Negev Forum's agenda included steps to improve the Palestinians' living conditions. The Abraham Accords have not yet succeeded in adding new members, and despite some softening in Saudi Arabia's position in the bilateral relations, including in the field of security cooperation and opening its airspace to Israeli flights, it remains committed to the existing 2002 Arab Peace Initiative (API) and maintains that the normalization of relations with Israel will come at the end of the process, not at the beginning. Even Gulf countries such as Oman and Qatar, which had (and who still may have) unofficial relations with Israel, have so far refused to turn them into full diplomatic relations. On the two-year anniversary of the Abraham Accords, normalization has opened the door for private sector entities, especially in the UAE, that were in a convenient position to expand and take advantage of the bilateral trade and commerce opportunities that arose as a result. However, the agreements have not yet succeeded in changing the attitudes of Arab populations towards Israel. Apart from Morocco, where surveys indicate that only 11% of the population see Israel as a threat, the Arab public generally continues to view Israel in a negative light, primarily due to its recent failure to resolve the Palestinian issue. This issue undoubtedly causes decision-makers in other Arab capitals, especially Riyadh, to hesitate to move forward with normalization. In light of this, the risk is that the lack of progress on the Palestinian front will ultimately lead to the Abraham Accords being perceived as just another cold peace.<sup>22</sup>

As a reminder, in 2017, the island of Tiran was transferred/returned from Egypt to Saudi Arabia. The Straits of Tiran, located west of the island, have a long history related to Israel's freedom of navigation to and from Eilat: Egypt's blocking of the Straits of Tiran before the Sinai War in 1956 by deploying coastal artillery at Ras Nasrani was one of the main causes for the outbreak of the war. In May 1967, Egypt blocked the passage through the Straits of Tiran, which was the main factor leading to the outbreak of the Six-Day War. During his visit to Israel and Saudi Arabia in mid-July 2022, U.S. President Joe Biden announced that the Multinational Force and Observers (MFO), which oversees the implementation of the peace treaty between Israel and Egypt reached in 1979 through U.S. mediation and which is intended to ensure freedom of navigation in the Straits of Tiran, will end its mission, and that the area will be monitored by optical means. This may

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<sup>22</sup> Gerald M. Feierstein and Yoel Guzansky, [Two Years On, What is the State of the Abraham Accords?](#), *MEI@75*, September 14, 2022.

be part of what Israel agreed to give the Saudis in exchange for advancing the relationship between the countries.

A study conducted by the Maritime Policy & Strategy Research Center at the University of Haifa presents the factual background regarding the transfers of the island from Saudi Arabia to Egypt and back and discusses the challenges facing the region in terms of maritime law in light of the transition from an agreed legal status (Israel-Egypt) to a legal status that was not agreed upon (Israel-Saudi Arabia). The author of the monograph notes that in light of history and maritime law, the future may hold challenges in all matters related to freedom of navigation in the Straits of Tiran.<sup>23</sup>

On the other hand, in the field of security in the Red Sea region, the Saudis have shown willingness to work with Israel. They have agreed to allow Israeli civilian flights to pass over the Kingdom's territory on flights to and from the East and have approved direct travel of pilgrims from Israel to Mecca. Both moves reflect a more accepting Saudi stance towards cooperation with Israel. It should be noted that Israeli policymakers may also consider developing relations with Saudi Arabia outside the framework of the Abraham Accords.

In contrast, Iran sees itself committed to the struggle against the United States and its regional allies, assuming that they are seeking to reduce its geopolitical influence in the Middle East and are trying to change the regime in Tehran. Iran's actions reflect its perception regarding the hostile attitude of the United States, Israel, and Gulf states. It will continue to project power through its security apparatus (including the Iranian Revolutionary Guard Corps) and proxy forces, seeking to extract diplomatic and economic concessions from the international community. As for U.S. interests, Iran's willingness to conduct attacks depends largely on its perception of the United States' readiness to respond, Iran's ability to carry out attacks without them leading to direct conflict, and the likelihood that carrying out attacks will jeopardize the easing of U.S. sanctions in the future. The leaders of President Raisi's new regime have toughened their stance and continue the policy of "brinkmanship" with regard to the negotiations on the Joint Comprehensive Plan of Action (JCPOA). Iran is determined to continue maintaining its influence in Syria as part of its strategy to expand its regional influence, for example, in Lebanon and through Hezbollah, which will threaten Israel. Iran will take advantage of the ongoing economic crisis in Lebanon and try to use civilian aid (including fuel supply) channeled through Hezbollah, to prevent the Lebanese government from seeking

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<sup>23</sup> Benny Spanier, [\*Fifty Years Since the Six Day War: Freedom of Navigation in the Tiran Straits from the Perspective of Maritime Law – Over but Not Done With\*](#) (Haifa: The Maritime Policy & Strategy Research Center and the Chaikin Chair for Geostrategy, University of Haifa, 2017) (Hebrew).

assistance from the West. Iran's ongoing support for the Houthis in Yemen will continue, as this support, including the supply of missiles and unmanned systems, poses a threat to U.S. partners and interests, especially through attacks on Saudi Arabia. Iran will continue to threaten Israel, both directly through its missile forces and indirectly by supporting Hezbollah and other terrorist organizations.

The Biden administration has not developed a consistent policy towards Turkey, despite the fact that several complex situations in the region affect Turkey's relations with the United States and other key players, as Turkey is seeking a more independent foreign policy. These include Russia's invasion of Ukraine in 2022, the Syrian civil war (which resulted in over 3.6 million refugees fleeing to Turkey), and other challenges related to Greece, Cyprus, and Libya. Since 2021, Turkey has worked to reduce tensions and increase trade with Israel (including upgrading diplomatic relations to an ambassadorial level), the UAE, and Saudi Arabia. There is no clear definition of U.S. diplomatic goals regarding Libya and there are no policy goals regarding Syria's reconstruction. Turkey is publicly discussing a new military operation in Syria aimed at removing Syrian Kurds affiliated with the PKK (Kurdistan Workers' Party) from areas near its border; however, criticism from the United States and Russia may affect if and how such an operation takes place.

There are concerns among NATO members in light of rising tensions in security relations between Turkey and Greece, as evidenced by a number of incidents between the two countries' air forces, which occurred while NATO was trying to focus on presenting a united front against Russia following its invasion of Ukraine. Experts are worried that if the tension escalates into hostile actions, Russian President Vladimir Putin may exploit it. Both Turkey and Greece are heading into crucial elections in 2023, with Turkish President Recep Tayyip Erdogan facing a significant challenge to his 20-year rule due to economic difficulties and immigration issues, while Greek Prime Minister Kyriakos Mitsotakis, who was elected in 2019, is suffering some loss of popularity due to rising energy prices resulting from the war in Ukraine. It is likely that Ankara will continue its two-pronged approach to Turkey's conflicts in the Mediterranean, attempting to strike a balance between "arm twisting" and diplomacy.

In summary, the Eastern Mediterranean region requires a new political order. Without a strong, coherent, and coordinated policy on the part of the European Union and NATO, relations in the Eastern Mediterranean are likely to become even more volatile. However, political solutions to the maritime border dispute between Greece and Turkey, the Cyprus issue, and the conflict in Libya, based on the rule of law and the existing political reality, have the potential to positively affect the entire region immediately, reboot EU–Turkey relations, and build future cooperation between the EU, the Eastern Mediterranean countries, and North Africa (MENA).

## The Red Sea, Arabian Sea, and Persian Gulf Region

The Red Sea, the Gulf of Aden, and the Persian Gulf were at the center of international tensions in 2022. The tense atmosphere between Iran and the Gulf states has always been a contributing factor to regional instability. However, since the United States withdrew from the JCPOA in 2018 during the Trump administration, covert wars between Israel and Iran and between the United States and Iran, which had previously taken place on land and in the air, have shifted to the waters of the Persian Gulf, the Gulf of Oman, and the southern Red Sea. In addition to the main rivalries mentioned, this campaign should also be seen as part of the battle between the Shiite bloc led by Iran and the Sunni states in the Middle East and the countries belonging to the Gulf Cooperation Council (GCC).

The Red Sea itself is rife with regional and international geopolitical barriers, especially at its chokepoints. The Straits of Hormuz were and remain threatened by Iran's proximity. The war in Yemen and Iran's support for the Houthi rebels has subjected the Red Sea, and particularly its southern part, to geostrategic and geopolitical threats similar to those in the Persian Gulf. In recent years, the eastern and western shores of the Red Sea have become a shared political and security arena, where both regional powers and countries in the area have significant interests, especially regarding free trade conducted through the Red Sea and the Gulf of Aden, valued at approximately \$700 billion annually. The impact and implications of the Suez Canal being blocked for six days in March 2021 by the container ship *Ever Given* have revealed the strategic centrality of the Red Sea as a transit route for oil and global trade.<sup>24</sup> From a geopolitical perspective, there are multiple national interests involved in this region, forming the foundation for the close relationship between its two coasts: the Arabian Peninsula and the Horn of Africa. The increased number of ports and new military facilities in the coastal areas of Sudan, Eritrea, Djibouti, and Somalia emphasizes the crucial relevance of East African countries to the Gulf States, as well as to other external powers involved in the region, such as Russia, Turkey, and China. At the same time, countries of the Horn of Africa are leveraging their strategic position to attract investments, thereby enabling powers to strengthen their grip on the region.

The western coast of the Red Sea and the Horn of Africa have also become a focal point for geopolitical changes. The UAE and Saudi Arabia's ambition on one hand and Turkey and Qatar's on the other, to gain control of the Horn of Africa has led to instability and

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<sup>24</sup> Udi Gonen, "The Incident of the Suez Canal Blockage by the Ever Given Container Ship – The Implications for the Region and for Israel" In: Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: The Maritime Policy & Strategy Research Center, University of Haifa, 2022), pp. 201–220.

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insecurity in an already volatile region known for its lack of governability. The competition between Egypt, Sudan, and Ethiopia over the use of the Nile remains unresolved and can potentially cause future conflicts between these countries. Brutal armed conflicts persist in Somalia, South Sudan, Sudan, and Yemen, involving countries on both sides of the Red Sea. This rivalry between Middle Eastern players raises the strategic rivalry between the United States and China and Russia to the top of the national security agenda.<sup>25</sup>

## The COVID-19 Pandemic and Its Impact on the International System

The outbreak of the coronavirus pandemic in late 2019 created a sense of vulnerability and, to a certain extent, helplessness around the world, rapidly and profoundly changing daily routines and affecting all aspects of life. The effects of the pandemic extend far beyond global health, and have an impact on the economic, political, and security spheres. COVID-19 is likely to remain a threat to populations worldwide until vaccines and effective treatments are widely disseminated across all sectors of the global population. The economic and political ramifications of the pandemic will continue to emerge for many years to come.

## The Global Economy

According to the Global Economic Prospects report issued by the World Bank, in the wake of the impact of the COVID-19 pandemic, the Russian invasion of Ukraine has deepened the slowdown in the global economy, which is entering what could become a prolonged period of weak growth and intense inflation. This raises the risk of stagflation, with potentially damaging consequences for economies with low to medium incomes. Global growth is expected to decline from 5.7% in 2021 to 2.9% in 2022 – significantly lower than the 4.1% forecast made in January 2022. This is expected to be the case during 2023–2024, as it is expected that the war in Ukraine will disrupt activity, investment, and trade in the near term, pent-up demand will fade, and fiscal and monetary policy accommodation will be withdrawn. As a result of the pandemic and the war, income levels in developing economies will be nearly 5% lower this year than the pre-pandemic trend.<sup>26</sup>

Some claim the COVID-19 outbreak had only temporary effects on the global economy and that globalization would renew once it subsides. However, recent research has produced other data indicating that the pandemic will have significant long-term effects

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<sup>25</sup> Moshe Terdiman, "Changes and Transformations in the Red Sea Basin – and Their Implications for Israel," In: Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: The Maritime Policy & Strategy Research Center, University of Haifa, 2022), pp. 173-182.

<sup>26</sup> [Stagflation Risk Rises Amid Sharp Slowdown in Growth, Global Economic Prospects](#), World Bank Group, June 2022.

on globalization. These conclusions are based on three observations. First, the pandemic increased inequality between and within countries and reversed trends in poverty reduction, which will increase anti-globalization sentiment in the future. Second, the pandemic has fueled populism, nationalism, and a return of state intervention in the economy, which has paved the way for an increase in protectionism. Third, governmental responses to the COVID-19 crisis have undermined the international institutions that have so far facilitated globalization. These forces have led to growing global uncertainty and higher transaction costs in international business. Research suggests that the reconfiguration of global value chains will result in a less global and more regionally fragmented global economy.<sup>27</sup>

However, the results of a survey conducted in March 2022 by McKinsey indicate that geopolitical instability remains the most cited threat to the global economy, and runaway inflation has overtaken volatile energy prices to become the second most cited concern. Supply chain disruptions is the third leading risk, followed by fluctuating energy prices and rising interest rates (see Figure 1). Overall, the level of pessimism regarding the second half of 2022 is on par with the first months of the COVID-19 pandemic in 2020, with more than half of those surveyed predicting that global economic conditions will worsen in the coming months.<sup>28</sup>

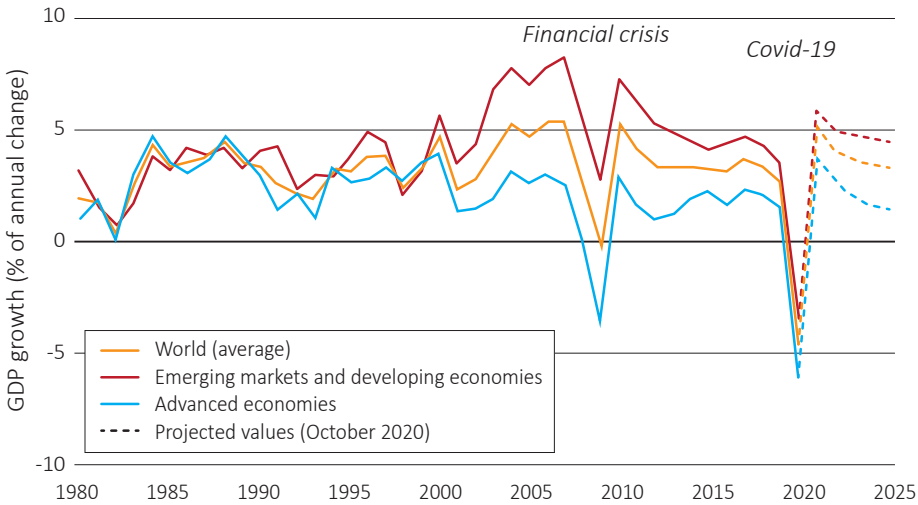


Figure 1: Disruptions in the supply chain – the three leading risks

<sup>27</sup> Luciano Ciravegna and Snežina Michailova, [Why the World Economy Needs, But Will Not Get, More Globalization in the Post-COVID-19 Decade](#), *Journal of International Business Studies*, 53 (2022), 172–186.

<sup>28</sup> [The Coronavirus Effect on Global Economic Sentiment](#), *McKinsey Company Survey*, June 29, 2022.

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The report also offers new insights regarding the impact of the war on energy markets, which also casts a shadow on the global growth forecast. The war in Ukraine has led to an increase in prices of a wide range of energy-related commodities. Higher energy prices are expected to continue to lower real income, increase production costs, worsen financial conditions, and limit macroeconomic policies, especially in energy-importing countries.

## Global Trade

### *The Global Supply Chain*

The COVID-19 pandemic has affected every part of the value chain, from the purchase of raw materials to the end customer. It has challenged the commercial, operational, financial, and organizational resilience of most companies around the world, highlighting risks and vulnerabilities for many organizations. The pandemic has impacted or led to:

1. Logistic disruptions;
2. Production delays;
3. Overreliance on a limited number of third parties;
4. Doubling down on technology investment;
5. Commodity pricing;
6. Workforce and labor.<sup>29</sup>

The supply chain challenges anticipated for 2023 include:

1. *Material shortages*: "Insufficient inputs have been a problem for several years now, largely brought on by the surge in consumer demand. In 2023, many retailers and suppliers have still not got on top of this demand. The limited availability of many materials and parts is part of the problem, and other global events such as the war in Ukraine are not making this any easier."<sup>30</sup>
2. *A rise in shipping costs*: The need for shipping containers increased significantly during the pandemic. This led to a greater demand for imported raw materials and consumer goods (a large percentage of which are transported in shipping containers), which was met with inadequate shipping capacity and an unprecedented shortage of empty or available containers. The shortage caused a significant increase in shipping

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<sup>29</sup> [Six key Trends Impacting Global Supply Chains in 2022, From Logistics Disruption, to Workforce and Labour](#), KPMG, Retrieved August 14, 2022.

<sup>30</sup> [Supply Chain Challenges and Tips For 2023](#), Eventura, January 25, 2023.

costs, and in 2022 for example, shipping costs from China to the West Coast of the United States skyrocketed by 240%.

3. *Difficulty with predicting demand:* The COVID-19 pandemic has disrupted the forecasts of countless retailers and suppliers of consumer products and services, making it impossible for them to estimate the amount of inventory they should hold or manufacture at any given time.
4. *Port congestion:* The congestion caused by the pandemic remains one of the leading challenges for supply chains worldwide. While the loading/unloading process generally proceeds according to plan, a shortage of manpower and social distancing due to the pandemic has created major bottlenecks in several busy global ports, causing companies to be unable to deliver their goods on time. This also affects distributors and logistics providers who are unable to meet their delivery commitments.
5. *A shift in consumer behavior:* Consumer behavior has changed significantly during the pandemic, including demands for shorter delivery times and increasing demand for a positive customer experience.<sup>31</sup>

The pandemic brought e-commerce demand to an all-time high. While an increase in order volume was an advantage for traders, new infrastructure needs and disruptions in the supply chain were major concerns.

The problems caused by the pandemic and its impact on the global supply chain were exacerbated by the war between Russia and Ukraine, which broke out in February 2022. Understanding Russia's trade specialization is crucial in assessing the potential implications of war-related disruptions on global supply chains and their geographic aspect. Russia's exports of oil, gas, and coal account for 15% of the global export of these commodities and the European Union is its largest importer, as well as the region with the highest dependence on imports from Russia. This explains the supply pressures arising in the natural resource sector. In addition to energy commodities, Russia is also a key exporter of raw materials, including those classified as critical by the European Commission (2020) due to their economic importance and high supply risks (see Figure 2). For example, Russia exports materials used to produce fertilizers, primarily potash, a field in which it has a dominant position, as well as rock phosphate and sulfur. In terms of critical raw materials, Russia is a major exporter of palladium, vanadium, and cobalt, which are mainly used in the production of 3D printers, drones, robotics industries, batteries, and semiconductors, thereby affecting other sectors too, such as electronic appliances, transportation, and most prominently the car sector. Russia is also the fourth largest producer of coking coal,

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<sup>31</sup> [Future of Supply Chain: Challenges, Trends & Tips for 2022](#), Skubana, March 17, 2022.



used for steel production, where it also enjoys a dominant market position, while Ukraine is one of the largest exporters of iron ore, which is used in the iron and steel industries.<sup>32</sup>

The war also created a severe food shortage, mainly in low-income countries in Africa. This is because Ukraine and Russia produce about a third of the world's wheat and a quarter of its barley, not to mention about 75% of the sunflower oil supply – all critical goods for maintaining human nutrition. The combination of sanctions imposed on Russia, the blocked Ukrainian ports, the closure of the Turkish straits, and the inability of Ukrainian farmers to work their fields, created global turmoil and a humanitarian crisis.

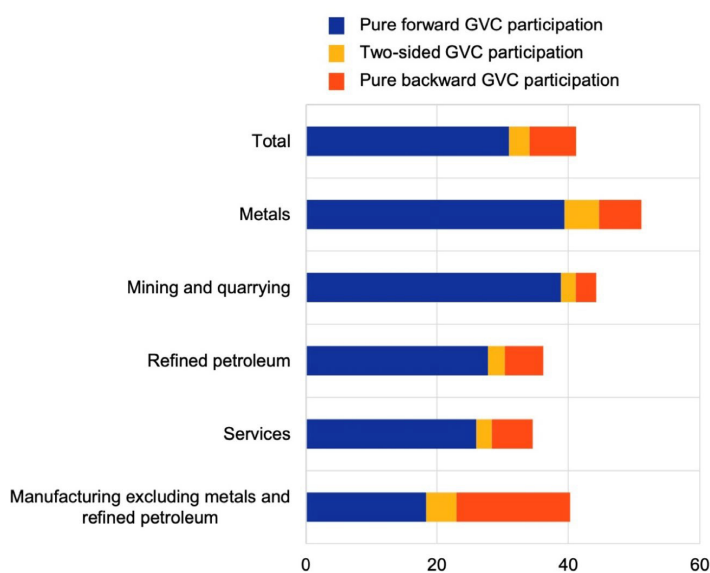


Figure 2: Russia's participation in global value chains across sectors by modes (percentage share of total export, 2020)<sup>33</sup>

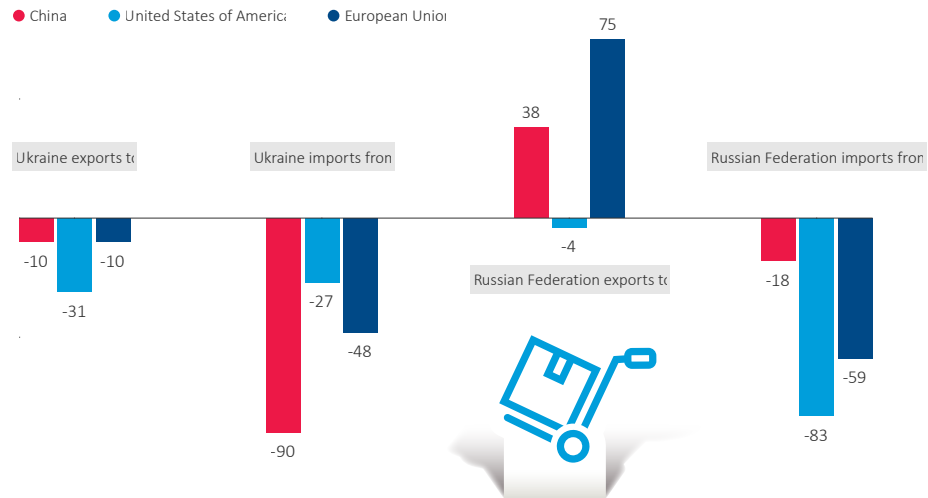
On July 22, 2022, the Russian Defense Minister and the Ukrainian Infrastructure Minister signed an agreement allowing the opening of Ukrainian ports on the Black Sea for wheat and fertilizer exports. The agreement, which was mediated by Turkey and underwritten by the UN, could impact the global food market, particularly benefiting developing countries in Africa and Asia that cannot afford the high wheat prices caused by the war in Ukraine. Under the agreement, Ukraine will export produce from three main ports, including the

<sup>32</sup> Maria Grazia Attinasi, Rinalds Gerinovics and Vanessa Gunnella, [Global Supply Chains Rattled by Winds of War](#), *Vox EU*, June 8, 2022.

<sup>33</sup> Lucia Tajoli, "Too Much of a Good Thing? RussiaEU International Trade Relations at Times of War", *Journal of Industrial and Business Economics*, 49, no. 3 (2022): Fig. 5.

port of Odesa. The UN established a coordination center staffed by officials from the organization, Turkey, Russia, and Ukraine, whose role is to oversee the implementation of the agreement. The agreement stipulates that Turkey and UN monitors will inspect ships entering the port of Odesa to load wheat to ensure that they are not transporting Western weapons to Ukraine, while the Russians commit to not using the passageways in the maritime minefields cleared by Ukraine to bring in landing ships and land troops on Ukrainian ports. The first ship loaded with wheat left the port of Odesa in early August 2022 and 16 more ships were waiting to be loaded with wheat.<sup>34</sup>

Year-over-Year percentage change in the value of merchandise trade during March and April 2022



Source: UNCTAD calculations based on the national statistics of China, the United States, and the European Union.

Figure 3: Russia and Ukraine's trade with three global economies (Source: UNCTAD)<sup>35</sup>

The transportation arteries connecting China with Europe have also been affected by the Russian invasion. The rise in gas prices has pushed up transportation costs across all modes of transportation. The railway route connecting the regions, which became highly competitive during the peak of the pandemic, especially for industries that value shorter delivery times, such as the automobile and electronics industries, is now jammed. This is particularly true for the main corridor that crosses Russia, Belarus, and Poland before continuing to Germany, France, and other countries in Europe.

<sup>34</sup> Dalton Bennett and Kareem Fahim, [First Ship Carrying Grain Leaves Odessa in Deal to Ease Global Food Crisis](#), *Washington Post*, August 1, 2022.

<sup>35</sup> [Global Trade Update](#), United Nations CTAD, Division on International Trade and Commodities, July 2022.

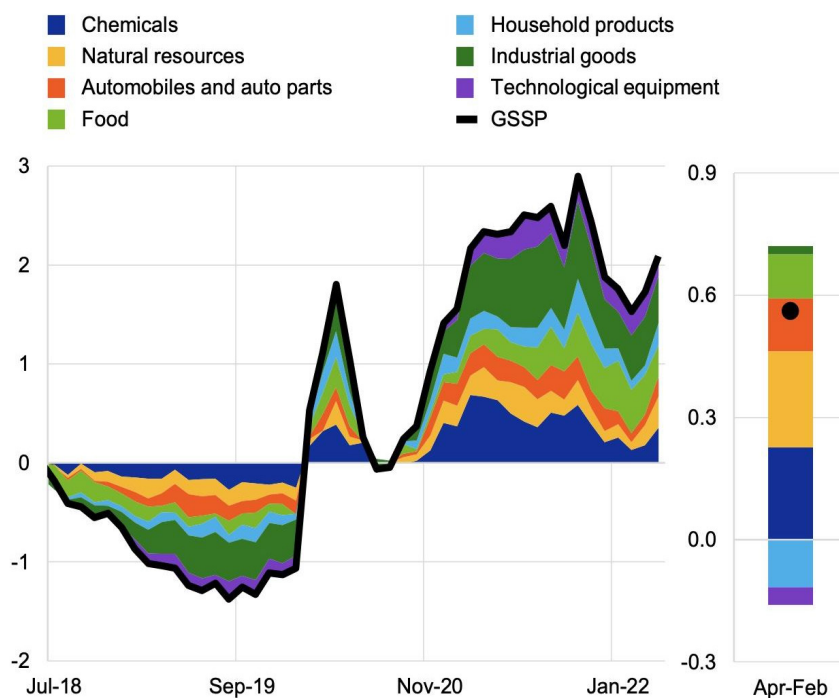


Figure 4: Supply chain pressure indicator in global manufacturing Latest observation: April 2022. Source: IHS Markit Ltd.

The value of global trade increased during the first quarter of 2022, although its growth continued to slow. Overall, the value of global trade reached a record level of around \$7.7 trillion in the first quarter of 2022, an increase of about \$1 trillion compared to the first quarter of 2021 and an increase of about \$250 million compared to the fourth quarter of 2021. Both trade in goods and trade in services grew during the first quarter of 2022. Trade in goods reached around \$6.1 trillion (an increase of about 25% compared to the first quarter of 2021 and an increase of about 3.6% compared to the fourth quarter of 2021), while trade in services amounted to about \$1.6 trillion (an increase of about 22% compared to the first quarter of 2021 and an increase of about 1.7% compared to the fourth quarter of 2021). Trade growth is expected to remain positive but continue to slow during the second quarter of 2022.<sup>36</sup> The value of global trade grew due to rising commodity prices, while trade volume grew much more moderately (see Figure 5).

The organization predicts a worsening of the geopolitical situation and continued friction that could negatively affect global trade at the end of the second half of 2022.

<sup>36</sup> Ibid.

Merchandise trade in values and volumes (Index 2019=100)

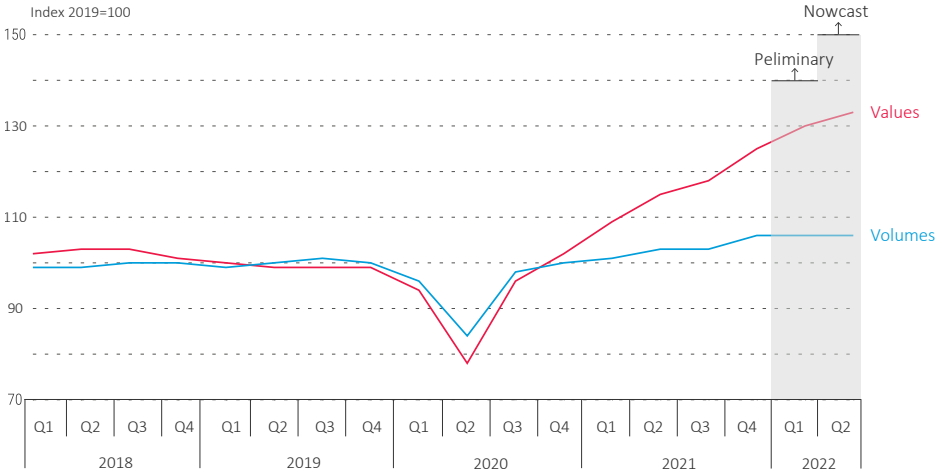
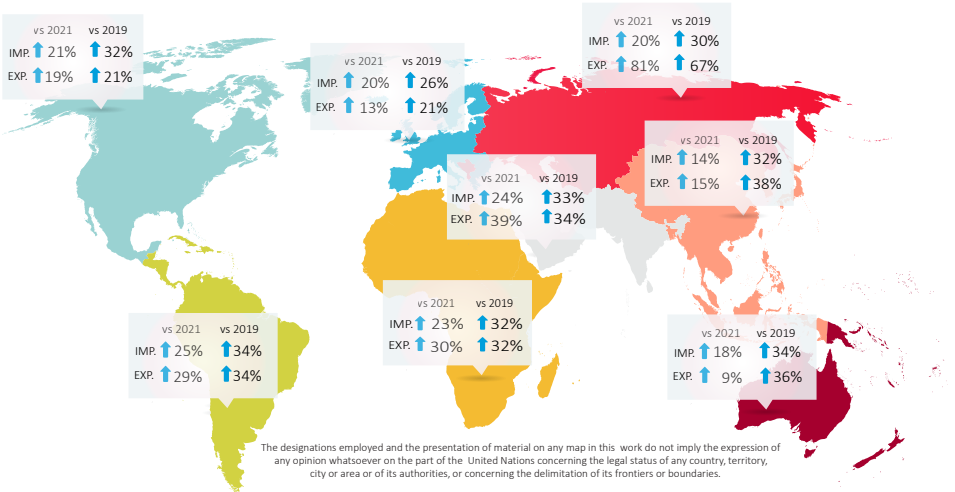


Figure 5: The impact of rising commodity prices on international trade (Source: UNCTADStat)<sup>37</sup>

Trade continues to increase in all regions, but less so in the East Asia and Pacific regions

Q1 2022 relative to Q1 2021 and Q1 2019



Source: UNCTAD estimates based on national statistics.  
 Note: Changes are year-over-year. Data excludes intra-EU trade. Data does not include trade in services.

Figure 6: Growth in trade across all regions (at a lower rate in East Asia and the Pacific regions)<sup>38</sup>

37 Ibid.

38 Ibid.

## China's Trade Balance

China's trade surplus unexpectedly fell to \$79.39 billion in August 2022 from \$59.13 billion in the same month last year, well below market expectations of \$92.7 billion. The decline was due to a more moderate increase in exports amid disruptions to production output caused by new COVID-related restraints and historic heat waves, while foreign demand weakened as inflation rose in many countries (see Figure 7). Shipments grew by 7.1% compared to the previous year, marking the slowest growth in shipments and the first single-digit growth since April, and below the market estimate of 12.8%. Imports grew by 0.3%, marking the slowest growth in incoming shipments since the standstill in April – also weaker than the expected growth of 1.1%. In the period between January and August 2022, China's trade surplus stood at \$560.52 billion, with exports growing by 13.5% while imports grew by 4.6% compared to the previous year. The trade surplus with the United States shrank to \$36.77 billion in August from \$41.5 billion in July.<sup>39</sup>

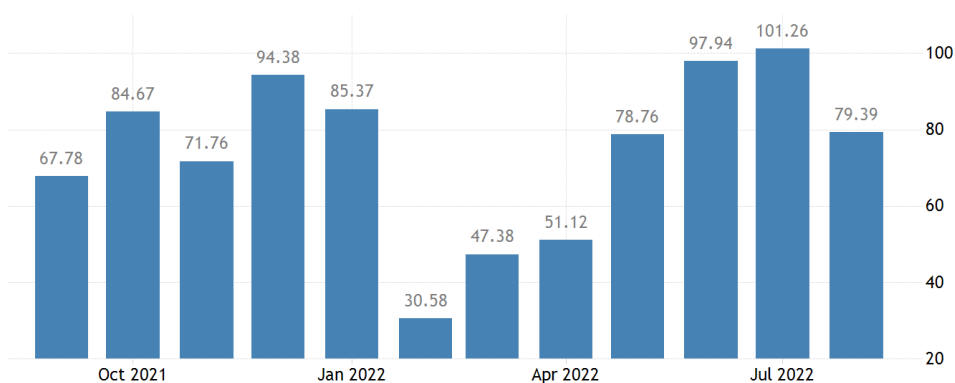


Figure 7: China's trade balance in the first half of 2022, Source: Tradingeconomics.com  
General Administration of Customs

## Demand for Oil and the State of the Tanker Fleet

European importers avoided crude oil sent from Russia in response to the invasion of Ukraine. This caused Russia to divert its oil exports towards Asia, mainly India and China. Assuming Europe will completely avoid Russian oil flows at a certain stage, this will affect the average monthly flows of 55 million barrels (around 1.8 million barrels per day) or up to 85 million barrels (2.8 million barrels per day) including oil from Kazakhstan.<sup>40</sup>

<sup>39</sup> [China Balance of Trade](#), Trading Economics, Retrieved September 30, 2022.

<sup>40</sup> Fotios Katsoulas and Rahul Kapoor, [Tanker Demand to Grow 3.5%–6.5% as Europe Avoids Russian Oil – Asia Imports More](#), S&P Global Market Intelligence, June 13, 2022.

As India has already increased the volumes it imports from Russia to over 900,000 barrels per day (compared to only about 30,000 barrels per day in 2021), it is highly likely that the country will be able to import 30 million barrels of crude oil from Russia every month (or around 1 million barrels per day). Meanwhile, China may increase its imports from Russia (primarily through additional shipments from Russia's European ports) by 15 million barrels per month compared to last year's activity, which is equivalent to an increase of half a million barrels per day.

This scenario will increase global demand for crude oil tankers by 3.5% (1.8% related to India and 1.7% driven by additional flows to China). A more optimistic scenario, in which India increases its flow from Russia to 45 million barrels per month, or 1.5 million barrels per day, and from China to 25 million barrels per month, or 830,000 barrels per day, will cause global demand for crude oil tankers to rise by 5.6% (2.8% related to India and 2.8% to China). A factor that could affect the market is the possibility of a ban imposed both by the United Kingdom and the European Union on insuring Russian fuel-carrying vessels worldwide, which could significantly affect the global shipping industry.<sup>41</sup> This ban, which will come into effect six months after the ban on oil transportation, could cause severe pressure against Russian oil exports from the Black and Baltic Seas, which could lead to a drop in exports by up to one million barrels per day. Without insurance, buyers will not agree to have the oil transported by sea unless governments establish mechanisms to cover local insurance, as was done in the past for fuel shipments from Iran.

The alternative observed so far, with Russia sending oil primarily to China and India, involves Russia having to rely on a tonnage estimate conducted under local control or ownership. According to estimates, replacing Russian oil shipments sent to China and India instead of Europe requires an additional 30 80,000–100,000 deadweight ton (DWT) Aframax tankers, 50 tankers capable of passing through the Suez Canal (Suezmaxes), and more than 40 VLCCs (see Figure 8).

It is important to note that the market for liquefied natural gas (LNG) transported by sea has grown significantly in 2022 in response to disruptions in pipeline gas supply. For the first time in history, this year, at least half of Europe's natural gas consumption was imported by ships.

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<sup>41</sup> Ibid.

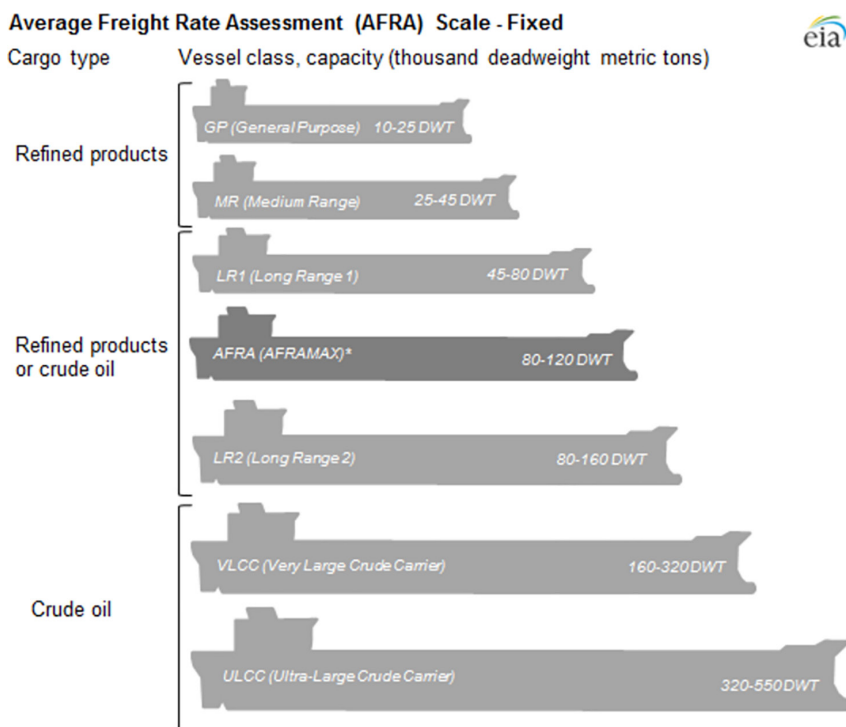


Figure 8: Vessels for transporting fuel and distillates (Source: Eia)

### Chokepoints

Chokepoints are strategic and narrow passages that connect two larger regions. With regard to maritime trade, these are usually straits or channels through which high traffic volumes pass due to their optimal location. There are currently eight major chokepoints. These include the Panama Canal, the Suez Canal, the Strait of Hormuz, the Bab el-Mandeb Strait, the Strait of Malacca, the Strait of Dover, the Strait of Gibraltar, and the Turkish Straits (Bosporus and Dardanelles). These vital chokepoints pose a number of risks for ships that pass through them, including:

*Structural risks:* As occurred when the *Ever Given* ship blocked the Suez Canal for six days in March 2021, a ship can become grounded along the canal's coast if the passage is too narrow, causing traffic jams that can last for days.

*Geopolitical risks:* Due to their high traffic volume, chokepoints are particularly vulnerable to deliberate blockades or disruptions during periods of political unrest. An example of this was when Turkey closed the Bosporus and Dardanelles Straits during the conflict between Russia and Ukraine in the spring of 2022.

Figure 9 depicts the risks associated with transit through the eight main chokepoints, divided into the categories of environmental risks, security risks, and administrative risks.<sup>42</sup> The type and level of risk vary depending on the location of the chokepoints and the existence of alternative routes.

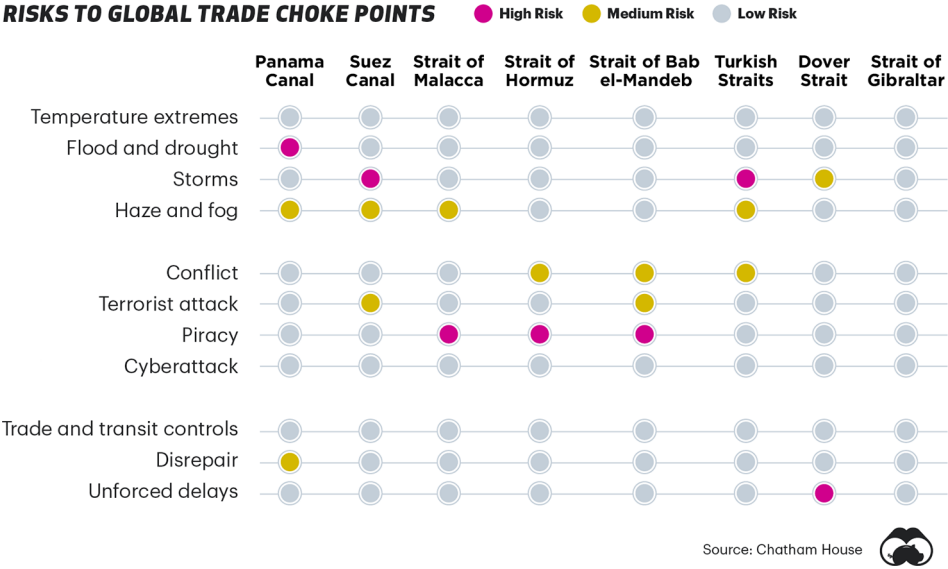


Figure 9: Risks to global trade at chokepoints<sup>43</sup>

The blockage of the Suez Canal in March 2021 by the giant cargo ship *Ever Given* due to an environmental risk (a weather event) exposed chokepoint vulnerabilities and their impact on global trade. Another reminder of this was when the crude oil tanker *Affinity V*, sailing under the flag of Singapore, ran aground in late August 2022 at the same location where the *Ever Given* cargo ship had grounded in March 2021. Fortunately, the tanker was refloated after five hours, but as mentioned, this served as a reminder of the vulnerabilities of chokepoints through which the majority of global trade is transported.<sup>44</sup>

Another incident occurred at a different chokepoint. In July 2019, the British-flagged tanker *Stena Impero* unknowingly strayed and entered Iran's territorial waters while crossing the Hormuz Strait (presumably due to a security risk involving the disruption of its navigation system). The incident serves to demonstrate the vulnerability of the GPS navigation system to disruption and manipulation. GPS blocking is already within

<sup>42</sup> Carmen Ang, [Mapping the World's Key Maritime Choke Points](#), *Visual Capitalist*, March 30, 2022.

<sup>43</sup> Ibid.

<sup>44</sup> Mike Schueler, [Crude Oil Tanker Briefly Grounds and Blocks Suez Canal](#), *Captain*, August 31, 2022.



the reach of some countries, through jamming or spoofing. While military GPS signals are encrypted and harder to access and manipulate, this is not the case in the civilian/commercial domain. It should also be noted that the civilian GPS technology available today can be used to attack military assets indirectly. Maritime analysts suggested that the Iranian Revolutionary Guards' navy falsified the *Stena Impero's* GPS signals in retaliation against the United Kingdom for detaining an Iranian tanker suspected of delivering oil to Syria.<sup>45</sup> In the future, such incidents may become increasingly common.

The *Ever Given* incident that completely blocked maritime traffic in the Suez Canal for more than six days and led to an estimated daily loss of \$9.6 billion in trade was attributed to a combination of environmental factors, such as strong winds, and human navigation errors by the bridge team. While this event was not a deliberate or malicious attack, maritime cyber experts recommend preparing for the possibility that adversaries with malicious intent may create similar incidents through cyber-attacks or by disrupting navigation equipment at any one of the chokepoints or other narrow waterways.

Israel relies on three main chokepoints: the Suez Canal and the Bab el-Mandeb Strait for trade with the East, which accounts for a quarter of Israel's total trade, and the Turkish Straits (the Bosphorus and Dardanelles) through which it imports most of its wheat from the Black Sea Basin, which is expected to reach 1.74 million metric tons (MMT) in 2022.<sup>46</sup>

### *Protection of Underwater Infrastructures*

The war between Russia and Ukraine illustrates the importance of defending critical infrastructure from attacks. Technical dependence, risks to the supply chain, and damage to critical infrastructure create opportunities for unwanted foreign intervention. Current geopolitical struggles for power are increasing in the technological and digital domains and different countries and technology companies are advancing toward achieving technological superiority and control of the global cyber domain.

Underwater fiber optic cable networks carry around 95% of international communication traffic and data. They are vital to the digital revolution in regard to expanding computing power and advancing artificial intelligence. Most of the world's internet traffic is transmitted through underwater cables spread out along thousands of kilometers of the ocean floor. The growth of this infrastructure is driven by a huge demand for data, cloud-based services, next-generation networks, and the need to adapt to the growing Internet of Things. Accordingly, there has been rapid growth in the deployment of underwater

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<sup>45</sup> Michelle Wiese Bockmann, [Seized U.K. Tanker Likely 'Spoofed' by Iran](#), *Lloyd's List Intelligence*, August 16, 2019.

<sup>46</sup> *USDA Foreign Agricultural Service*, [Israel: Grain and Feed Annual](#), March 21, 2022.

cables around the world in recent years. Hundreds of these cables, operated by various government and private entities, support a broad range of fields, from data and cellular network traffic to bandwidth-intensive applications, such as video sharing, consumer shopping, and government communication. Therefore, underwater cables are the critical and core infrastructure in the digital age and can also affect geopolitical aspects that are currently still being ignored.<sup>47</sup>

As a result, the resilience and security of underwater cables are vital for securing global governance and order now and in the future. They involve key geopolitical issues, ranging from connectivity, security, and regulation to narrow technical problems. Most of these cables are not owned by governments but are operated by separate consortiums of private companies or entities, with almost no international agency or intergovernmental system governing them.

In light of the threat assessment mentioned above and the fact that this threat was realized when the gas pipelines in the Baltic Sea were attacked in late September 2022, leading to a leak in the Nord Stream gas pipelines from Russia to Europe, UK Defense Secretary Ben Wallace announced that Britain would procure two ships and convert them to protect underwater infrastructure, such as communication cables and gas pipelines.<sup>48</sup> The Italian navy also announced that it would take steps to bolster the protection of gas pipelines passing through the Mediterranean following suspicions of sabotage in the Nord Stream system. According to a plan developed by Defense Minister Lorenzo Guerini, the Italian navy will operate remote-controlled submarines to monitor key areas in the Mediterranean, particularly around the infrastructure used to transport gas from North Africa to Europe. Norway, which supplies gas to European countries such as Poland, has also increased its readiness regarding electronic communication, specifically focusing on underwater communication cables. In the spring of 2022, a data cable connecting the Arctic islands of Svalbard to the Norwegian mainland was damaged and official sources concluded that "human actions" caused the underwater cable to tear.

In the near future, it will be necessary to expand the concept of maritime domain awareness to include underwater infrastructure and ways to maintain and protect it effectively.

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<sup>47</sup> Raluca Csernatonu, [The Geopolitics of Submarine Cables, the Infrastructure of the Digital Age](#), *Italian Institute for International Political Studies – ISPI*, June 20, 2022.

<sup>48</sup> Reuters, [Britain To Acquire Two Specialist Ships To Protect Underwater Infrastructure](#), *gCaptain*, October 2, 2022.

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## *Climate Change and Its Impact on the Environment*

It is currently estimated that the effects of climate change and continued environmental damage will create a combination of direct and indirect threats in the near future and beyond, including risks to the economy, political instability, increased numbers of refugees and displaced people, and new sources of geopolitical competition in the near future and beyond. Scientists warn that rising temperatures in the atmosphere, on land, and in the sea will create more frequent and variable extreme weather events compared to those of today, including heat waves, droughts, and floods that will directly threaten the interests of countries such as the United States if they are unable to cope with these conditions. The decline in the quality and depletion of soil, water, and biological diversity will almost certainly threaten infrastructure, health, water, food, and security, especially in many developing countries that lack the ability to adapt quickly to changes, and will increase the potential for conflict over rare natural resources.

The International Climate Change Conference was held in Glasgow, Scotland between October 31 and November 12, 2021, with the main goal of ensuring global net-zero carbon emissions by the middle of the century, thereby making it possible to keep global warming to a maximum of 1.5 degrees Celsius. After 13 days of negotiations between nearly 200 countries, the Glasgow Climate Pact was signed, completing the Paris Agreement rulebook.

Likewise, commitments were made regarding a variety of other issues, such as forests, methane, vehicle emissions, and private financing. This included a commitment by 137 countries to "halt and reverse forest loss and land degradation" by 2030. Ending the use of coal for energy production was a key goal of the conference's presidency held by the United Kingdom. One hundred ninety countries agreed to gradually phase out their coal-fired power plants, resulting in an expected 76% reduction in planned new coal power plants. Over forty countries declared their support for transitioning from coal to cleaner energy.<sup>49</sup>

The Conference of the Parties (COP), which is the annual meeting of the United Nations Framework Convention on Climate Change (UNFCCC), was held in Sharm el-Sheikh between November 6–18, 2022. This was the largest event sponsored by the UN and was attended by approximately 37,000 official participants and 100,000 participants from civil society organizations. Egypt hosted the conference as a representative of the African continent. The conference was aimed at coordinating global efforts and discussing joint

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<sup>49</sup> Dominic Carver, [What Were the Outcomes of COP26?](#), U.K. Parliament, House of Commons Library, January 27, 2022.

action to mitigate climate change, which could lead to a potential loss of up to 18% of global GDP by 2050. The conference also prepared to examine the implementation of decisions made at the previous conference, such as the establishment of the global mechanism for trading in emissions, setting a global adaptation target, and examining progress on funding for coping with climate change. In addition, a discussion was held on the issue of compensation for climate losses and damages.<sup>50</sup> Prior to the conference, the UN stated that there was no realistic path to achieving the goal, as the world had not worked towards achieving it thus far. Therefore, an agreement was reached prior to the conference aiming to limit the global temperature increase to no more than two degrees Celsius.

Under pressure from countries such as Egypt, Saudi Arabia, Russia, and China, and due to the presence of many lobbyists from the oil and gas industries at the conference, critical clauses for the fight against global warming were not included in the agreement reached at the conference. Among other things, there was no clear commitment to stop using fossil fuels, and there was no commitment to bring about a drastic reduction in greenhouse gas emissions from 2025. In addition, there was no commitment by all the countries of the world to update their emission reduction targets by next year.<sup>51</sup>

After two weeks of discussions, representatives of around 200 countries agreed to establish a compensation fund for developing countries that have been affected by the damages of the climate crisis, which have mainly been caused by the activities of wealthy and polluting countries.<sup>52</sup> This is a significant achievement for poor countries that have been fighting for this compensation for a long time. However, the representatives at the conference failed to strengthen global efforts to stop global warming that is causing climate damage, at a time when the window of opportunity to prevent severe crisis damages is closing rapidly. The world is currently on a path of catastrophic warming of at least 2.4 degrees Celsius compared to the pre-industrial era. Scientists warn that this warming will lead to dramatic changes to the nature of life on Earth and significantly increase the likelihood of natural disasters, such as fires, droughts, extreme heat waves, floods, and more. The issue of compensating underdeveloped countries was at the center of the discussions at the conference from the first day, and this is the first time this issue has officially appeared on the conference agenda.

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<sup>50</sup> Shani Ashkenazi, "[Meaningless Speeches and a Missed Goal: The Climate Change Conference concludes a week](#)", *Calcalist*, November 12, 2022 (Hebrew).

<sup>51</sup> Li Yaron, "[Where is Humanity Heading? Summarizing Two Weeks of Battles at the Climate Change Conference in Sharm el-Sheikh](#)", *Haaretz*, November 20, 2022 (Hebrew).

<sup>52</sup> [Sharm el-Sheikh Implementation Plan](#), *United Nations, Framework Convention on Climate Change*, Revised Advance Version, November 20, 2022.

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In the United States in recent years, and especially during the presidency of Donald Trump, there has been a significant reluctance to acknowledge the severity of the climate crisis and the need to take drastic action to stop global warming. The situation changed with the election of Joe Biden as president and the start of his term in January 2021. President Biden introduced two legislative proposals on the issue: investments in infrastructure and jobs, and the social investments act. The first proposal, which included investments of \$80 billion in transitioning to clean energy, was easily passed in the Senate, with support from 19 Republican senators. The majority of the climate-related investment was included in the second proposal, known as the Build Back Better Act. The Inflation Reduction Act, led by Senator Joe Manchin and Senate Majority Leader Chuck Schumer, includes \$384 billion in new budgets to accelerate the transition to clean energy, incentivize consumers to purchase electric cars, and promote additional green priorities, as well as incentives for the oil and gas industry. This is one of the largest financial commitments made by the United States government to combat climate change and was signed by President Biden in mid-August 2022. The expected reduction in emissions due to this law is equivalent to the annual emissions from France and Germany combined, which are about 2.5% of the world's annual emissions. This act alone may revive the goal of limiting global warming to 1.5 degrees Celsius, as determined in the Paris Agreement.<sup>53</sup>

The International Maritime Organization (IMO) has also committed to working to reduce greenhouse gas emissions from ships in Resolution MEPC.304(72), with the intention of adhering to the decisions made at the Glasgow conference. It should be noted that the global shipping industry is responsible for generating 3% of all greenhouse gas emissions, and therefore it is important that it is aligned with the decisions made at the conference. The resolution emphasizes the benefits of working towards a synergy between clean air policies in shipping and building on existing measures related to reducing ship pollution under the International Convention for the Prevention of Pollution from Ships (MARPOL). The organization's leaders expressed great concern regarding the findings of the IMO's fourth greenhouse gas study for 2020, which estimates that if further steps are not taken, international ship emissions are expected to reach 90% to 130% of 2008 emission levels by 2050. The organization also recognizes that a rapid transition in the next decade to clean marine fuels, zero-emission vessels, alternative propulsion systems, and global availability of onshore infrastructure to support these is necessary to facilitate the shift to clean shipping. The statement signatories emphasized the need to establish an international coalition between proactive governments to work together and demonstrate

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<sup>53</sup> Elisabeth Ponsot, "[Bill Gates, Joe Manchin, and the Climate Bill That Nearly Wasn't](#)", *Bloomberg*, August 17, 2022.

that it is possible to reach zero-carbon emissions from ships while creating new business opportunities and socioeconomic benefits for communities around the world.

On June 15, 2022, the seventh ministerial meeting of the Eastern Mediterranean Gas Forum (EMGF) was held in Cairo and attended by the President of the European Union, Ursula von der Leyen. The purpose of the forum is to serve as a regional framework for cooperation between governments and a multi-party dialogue on natural gas. During the forum, Israel's then-Energy Minister Karine Elharrar signed a memorandum of understanding between Israel, Egypt, and the European Union on cooperation in trade, transportation, and natural gas exports to EU countries. The signatory parties will work together to enable regular natural gas supply to EU countries from Egypt, Israel, and other countries through the existing natural gas infrastructure in Egypt. The agreement represents another step towards positioning Israel as a natural gas power, which will increase the country's natural gas exports to Egypt and from there to other countries in Europe that require an additional natural gas source due to the global energy crisis. Natural gas exports serve as a lever for Israel's geopolitical status while preserving the amount of natural gas required for domestic consumption. This also has major economic implications for the local energy sector and the Israeli economy. Furthermore, this step helps Israel and countries such as Egypt reduce the use of polluting fuels, such as coal and oil, and dramatically reduces air pollution in the region.

### *The Clydebank Declaration for Green Shipping Corridors*

In light of the negative contribution of the shipping industry to greenhouse gas emissions, the signatories of the declaration committed to supporting the establishment of green shipping corridors, i.e., maritime routes between two (or more) ports with no carbon emissions. The signatories to the declaration stated:

It is our collective aim to support the establishment of at least 6 green corridors by the middle of this decade, while aiming to scale activity up in the following years, by, among other measures, supporting the establishment of more routes, longer routes and/or having more ships on the same routes. It is our aspiration to see many more corridors in operation by 2030. We will assess these goals by the middle of this decade, with a view to increasing the number of green corridors. In the pursuit of these goals, with reference to the approach(es)..., signatories pledge to... identify and explore actions to address barriers to the formation of green corridors. This could cover, for example, regulatory frameworks, incentives, information sharing or infrastructure... [and] the inclusion of provisions for green corridors in the development or review of National Action Plans...<sup>54</sup>

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<sup>54</sup> [COP 26: Clydebank Declaration for Green Shipping Corridors, Policy Paper](#), Gov.UK, Updated April 13, 2022.

## *Israel's Commitment to Reducing Greenhouse Gas Emissions*

In July 2021 and in anticipation of Israel's participation in the Glasgow Climate Change Conference, the government of Israel approved a proposal to transition to a low-carbon economy to meet the standards of advanced countries in the world (OECD) and set goals for reducing emissions. Initially, the government set modest targets: an 85% reduction in greenhouse gas emissions by 2050 compared to 2015 emissions and a reduction in emissions of only 27% by the end of the current decade. Shortly before, then-Prime Minister Naftali Bennett attended the UN Climate Change Conference in Glasgow in November 2021. Israel decided to align with the OECD countries and declared a target of net-zero emissions by the middle of the century (2050). However, while other countries were required to update their nationally determined contribution (NDC) prior to the conference and did so, Israel has not yet submitted a detailed plan to the UN.<sup>55</sup> To implement the transition to a low-carbon economy, Israel Government Resolution 171 stipulates that a cross-ministerial committee led by the director general of the Ministry of Environmental Protection, Galit Cohen, was to develop and submit a detailed national plan for carrying out the necessary steps. As of the writing of this report, this plan has not yet been completed.<sup>56</sup>

## The Cyber Domain

Cyber-attacks are designed to steal information, influence populations, and harm industries, including critical physical and digital infrastructure, and they will continue to pose a threat to countries and global companies around the world. Despite the increasing cyber capabilities of countries and non-state actors, the Western world is mainly concerned about Russia, China, Iran, and North Korea. The growing use of cyber operations by states as a means of wielding national power, including their increased use by militaries around the world, raises the likelihood of offensive and more harmful cyber activity. As states attempt more aggressive cyber actions, they have a higher chance of impacting civilian populations and strengthening other states seeking similar results. Authoritarian and illiberal regimes around the world will increasingly exploit digital tools to monitor their citizens, control freedom of expression, increase censorship, and collect information to control their populations. Governments will conduct more and more cross-border cyber intrusions that affect citizens beyond their borders as part of broader efforts to identify foreign populations and influence them. Over the past decade, state-sponsored hackers

<sup>55</sup> [Nationally Determined Contributions \(NDCs\)](#), *United Nations Climate Change*, Process and Meetings, Retrieved August 23, 2022.

<sup>56</sup> Prime Minister's Office, Government Resolution No. 171 dated July 25, 2021, [Transition to a Post-Coal Economy](#) (Hebrew).

have infiltrated software networks and IT services, aiding in espionage, sabotage, and preparation for war.

The maritime industry, which is a central part of the supply chain for all products, is highly dependent on computer and control systems. More than 90% of global trade is transported by sea, and a cyber-attack on ports or shipping vessels and companies can have significant and wide-ranging economic consequences. In recent years, it has become apparent that supply chains in many organizations and companies are vulnerable in terms of cybersecurity. A supply chain is a coordinated system of organizations, people, activities, information, and resources involved in delivering a product or service from a supplier to a customer. This means that an attack on a weak link in the chain can lead to the collapse of the global supply chain. In the maritime domain itself, which is a significant part of the supply chain, as ships continue to adopt more and more digital technology, the risk of cyber-attacks increases. The IMO defines a maritime cyber risk as: "the extent to which a technology asset could be threatened by a potential circumstances or event, which may result in shipping-related operational, safety or security failures as a consequence of information or systems being corrupted, lost or compromised". However, during the COVID-19 pandemic, it became clear that the greatest cyber threat actually lies in the shipping and ports sector. The pandemic accelerated the digitization that was already occurring in the world due to guidelines that required people to work from home via the internet. As a result, the shipping and ports sector has had to increasingly rely on internet communication, which requires shipping systems to remain continuously connected to the network, making them more vulnerable to cyber-attacks. The situation is exacerbated by the fact that a large part of the systems and computers in the shipping industry rely on complex and outdated operating systems, which further compromises their resilience to cyber-attacks. In 2017, the IMO's Maritime Safety Committee (MSC) adopted guidelines for managing maritime cyber risk in safety management systems in Resolution 98 428. MSC. The resolution encourages shipping company managers to ensure that cyber risks are properly addressed in existing safety management systems (as defined in the ISM Code) no later than the company's first annual verification of the compliance document after January 1, 2021. Internet-related (IT) and operational technology (OT) systems that may be exposed to cyber threats include, among other things, command bridge systems, cargo handling and management systems, propulsion and machinery management systems, power and access control systems, communication systems, and more. The ship crews' limited ability to support or manage advanced cyber security issues are emerging as a persistent problem in the maritime industry.<sup>57</sup>

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<sup>57</sup> [Maritime Cyber Risk Management in Safety Management Systems](#), Annex 10, Resolution MSC.428(98), adopted on 16 June 2017.



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A report issued by the maritime cyber security company CyberOwl published in March 2022 revealed significant gaps in cyber risk management in shipping organizations and the broader supply chain, despite the guidelines provided to shipping stakeholders by the IMO in 2021. The report is based on a survey of over 200 industry professionals, including C-suite executives, cyber security experts, sailors, port managers, and suppliers. The survey's main findings are as follows:

- The financial cost of a cyber-attack can be severe: when attacks led to ransom demands, the average ransom paid by ship owners was \$3.1 million.
- However, most ship owners have invested significantly in cyber security management: over half of them spend less than \$100,000 per year.
- Two-thirds of industry professionals do not know whether their insurance covers cyber-attacks.
- Only 55% of suppliers in the industry are required by ship owners to prove that they have cyber risk management guidelines.
- More than 25% of sailors do not know (and have not been trained regarding) what actions are required of them in the event of a cyber event.
- Within organizations, the higher a person's position, the less likely they are to be aware of a cyber-attack.<sup>58</sup>

In the future, it is highly likely that hostile regimes, non-state actors with malicious intent, and proxy organization supporters will create unprecedented destruction in coastal waters and chokepoints.<sup>59</sup> Cyber threats and other electronic threats are particularly prominent in the maritime domain and have grown dramatically over the past decade. Malicious actors understand that the maritime domain depends on automation and will seek to exploit vulnerabilities in ship systems. Tactical and strategic damage in information-dependent systems is becoming so common and inexpensive that even small nation-state rivals and organized groups can exploit this dependence, either on their own or as proxies of larger powers. Additional countries interested in challenging the world order and non-state actors use and will continue to use cyber threats as a strategy against law-and-order-abiding states. This is a new form of irregular warfare and it is assumed that the cyber threat on ships, ports, and maritime infrastructure will increase sharply in the coming years. Therefore, preparation is required to protect the assets mentioned, including international cooperation to defend and deter state or other actors from operating in this domain.

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<sup>58</sup> [Global Industry Report: The Great Disconnect – The State of Cyber Risk Management in the Maritime Industry](#), HFW Cyberowl, March 2022.

<sup>59</sup> Diane Zorri and Gary C. Kessler, [Adversaries are Leveraging Maritime Cyber Vulnerabilities for advantage in Irregular Warfare](#), *Modern Warfare Institute*, September 8, 2021.

## Refugees and Immigration

Refugees are people who have been forced to flee their homeland in order to escape conflict, violence, natural disasters, or persecution because of their race, religion, nationality, political opinion, or association with a particular social group. The largest refugee crises in 2022 took place in the following countries: Somalia, Sudan, the Democratic Republic of Congo, Rohingya in Myanmar, South Sudan, Afghanistan, Ukraine, and Syria. In 2022, Syria was still the country that had caused the largest refugee crisis in the world. Over 6.8 million Syrians have been forced to flee their country since 2011, and another 6.9 million people remain internally displaced. The vast majority of refugees – around 5.2 million people – have found refuge in neighboring countries, mainly in Turkey, Lebanon, and Jordan. Germany is the largest non-neighboring host country, having taken in over 620,000 Syrian refugees. In the past decade, the chances of a speedy end to the refugees' plight and their return to their homes have diminished. In general, in the 1990s, an average of 1.5 million refugees were able to return home each year. In the past decade, this number has dropped to around 385,000, meaning that the annual creation of refugees far exceeds the ability to safely return them to their homelands.<sup>60</sup>

The Russian invasion of Ukraine in February 2022 led to a major exodus of refugees from Ukraine. The exact number of refugees created by this invasion is still unknown, but the UN estimates that it has already created at least 4.8 million international refugees, with an estimated 7.1 million internally displaced persons still within the country. In April 2022, the UN referred to the refugee crisis in Ukraine as "the fastest and largest displacement of people in Europe since World War II".<sup>61</sup> It should be noted that despite the large number of refugees created by the war between Ukraine and Russia, almost all refugees choose to flee to neighboring European countries by land, especially after ship movement in the Black Sea was almost completely halted due to the closure of the Bosphorus and Dardanelles Straits and areas suspected of being sea-mined.

In the maritime domain: Between January and September 2022, 1,280 people have lost their lives while attempting to cross the Mediterranean Sea from the coasts of North Africa on their way to Europe. A total of 194,484 people attempted to cross the Mediterranean, of whom 113,535 arrived illegally, 78,926 were intercepted at sea, and 2,023 are missing

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<sup>60</sup> [Global Issues, Refugees](#), *The United Nations*, Retrieved, September 30, 2022.

<sup>61</sup> ["The war has Caused the Fastest and Largest Displacement of People in Europe since World War II"](#), *United Nations, Ukraine*, March 24, 2022.

or dead.<sup>62</sup> Since 2014, the Missing Migrants Project has recorded over 20,000 deaths and disappearances in the Mediterranean Sea.

The main migration route in the Mediterranean Sea is the crossing from North Africa to Italy, and to a lesser extent, to Malta. Those who migrate this way usually aim to reach the shores of Italy and arrive from a variety of North African countries bordering the Mediterranean Sea. Although in recent years most migrants left from Libya, which is a destination for migrants as well as a transit state, there is also a relatively small but growing number of departures from Tunisia, Egypt, and Algeria. Tunisia, in particular, has seen a rise in this context, with Tunisian nationals accounting for over 60% of those who used the main Mediterranean migration route in 2020. A large proportion of migrants on the central route are intercepted and returned to their exit points in North Africa.<sup>63</sup>

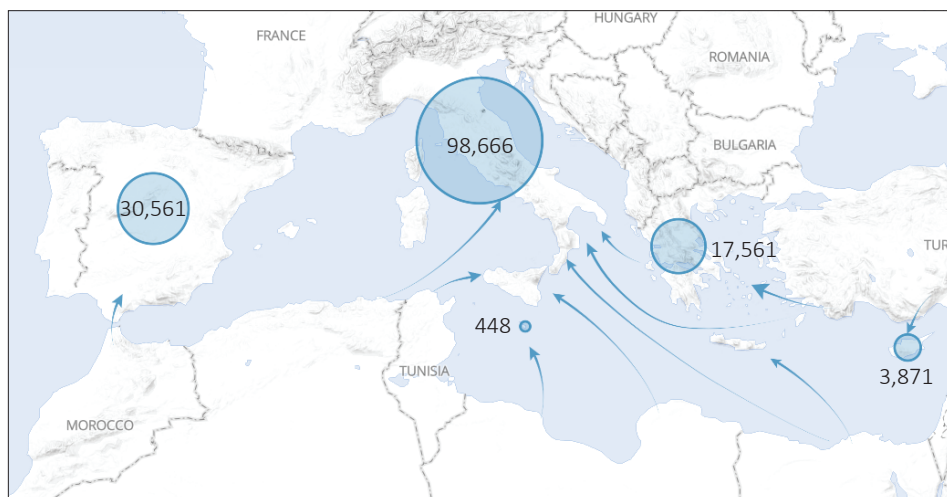


Figure 10: Immigration to selected countries in Europe<sup>64</sup>

The dire economic situation in Lebanon, now in its third year, with three-quarters of the population living below the poverty line and the Lebanese pound losing 90% of its value against the dollar, has led to a wave of sea migration to Europe. One incident in which many migrants lost their lives occurred on September 21, 2022, when a boat filled with migrants leaving Lebanon capsized off the coast of Tartus, Syria. At least 94 people died,

<sup>62</sup> Migration within the Mediterranean, [Missing Migrants Project](#), the International Organization for Migration (IOM), September 11, 2022.

<sup>63</sup> Ibid.

<sup>64</sup> UNHCR, the UN Refugee Agency, [Sea Arrivals in 2022](#), Last updated 18 December 2022.

including at least 24 children. Twenty people survived and the rest were declared missing. This was one of the deadliest boat sinkings in the Eastern Mediterranean in recent years. More and more Lebanese, Syrians, and Palestinians are trying to escape cash-strapped Lebanon for Europe in search of jobs and stability. The UN High Commissioner for Refugees reports that attempts at dangerous sea migration from Lebanon have increased by 73% over the past year.<sup>65</sup>

Table 1: Refugees arriving on European shores by sea during 2014–2022 and the number of missing/dead

Year	Refugees Arrivals*	Number of Missing/Dead
2014	219,000	3,500
2015	853,000	3,771
2016	363,000	5,096
2017	172,000	3,139
2018	141,500	2,277
2019	112,000	1,283
2020	95,000	1,445

\* Including sea arrivals to Italy, Cyprus, and Malta, and both sea and land arrivals to Greece and Spain (including the Canary Islands). Data are as of 31 December 2020 for all countries except Cyprus, for which last available data are as of 31 August 2020.

## Terrorism and Maritime Terrorism

The Global Terrorism Index (GTI) for 2022, which is a comprehensive study analyzing the impact of terrorism on 163 countries covering 99.7% of the world's population, indicates that despite a rise in attacks, the impact of terrorism continues to decline. Only 44 countries recorded deaths from terrorism in 2021, compared to 55 countries in 2015.<sup>66</sup> The report notes that politically motivated terrorism has become the central driver of terrorism, as opposed to religiously motivated terrorism, which decreased by 82% in 2021. In the last five years, there have been five times more attacks from politically motivated sources than religiously motivated sources.<sup>67</sup> Other emerging trends include the following:

Sub-Saharan Africa has become a global hotspot for terrorism. Despite the number of global terror attacks rising to 5,226 in 2021, the number of global deaths slightly decreased by 1.2% compared to the previous year. The conflict in Ukraine could lead to an increase

<sup>65</sup> Kareem Chehayebd, ["Don't Leave Me": Survivor Recounts Lebanon Boat Sinking](#), *AP News*, September 28, 2022.

<sup>66</sup> Institute for Economics & Peace, [Global Terrorism Index 2022, Measuring the Impact of Terrorism](#) (Sydney, March 2022).

<sup>67</sup> *Ibid.*, p. 2.

in traditional and cyber terrorism, and could change the positive trends previously seen in the region. In 2021, the number of global terror attacks decreased, due to, among other reasons, travel restrictions imposed to limit the spread of the COVID-19 pandemic. However, the Southeast Asian region in the Sulu-Celebes Sea, which connects Borneo and Sulawesi to Mindanao through a long chain of islands, has become a hotbed of crime, piracy, and terrorism in recent years.<sup>68</sup>

Terrorism in Western countries has decreased significantly: attacks decreased by 68%, and politically motivated attacks surpassed religiously motivated attacks, their total number amounting to five times greater than religiously motivated attacks, which decreased by 82%. The United States recorded its lowest index since 2012. Africa south of the Sahara accounted for 48% of global terrorism deaths, and the region known as the Sahel is home to the fastest growing and deadliest terrorist groups in the world. Myanmar had the largest increase in terrorism, and the number of deaths multiplied by 20 to 521 deaths in 2021.<sup>69</sup>

In 2021, the Islamic State (ISIS) became the deadliest terrorist group in the world, surpassing the Taliban. Terrorism has become more concentrated in certain areas; however, there were no recorded deaths due to terrorism in 119 countries, marking the most positive situation since 2007.

A trend has been observed in recent years whereby terrorist organizations are using more advanced technologies, including drones, GPS systems, and encrypted messaging services.

In a study conducted in 2022 regarding the level of threat posed by maritime terrorism to the reliability of the global supply chain and logistics, researchers concluded that the real concern is not the immediacy of the threat and whether it materializes, but rather the potential danger such an event could pose in the 21<sup>st</sup> century. According to the researchers, even a small maritime terrorist incident in a major port or maritime infrastructure has serious economic and political implications. For example, a ship being hijacked and used as a weapon or to block chokepoints like the Strait of Malacca or the Suez Canal would cause significant damage to the global economy.<sup>70</sup>

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<sup>68</sup> Ibid.

<sup>69</sup> Ibid.

<sup>70</sup> Mikhail Zelenkova, Yuliya Laamartia, Marina, Charaevab, Tatyana Rogovac, Olga Novoselovad, and Aehlita Mongushe, [Maritime Terrorism as a Threat to Confidence in Water Transport and Logistics Systems](#), *Transportation Research Procedia* (2022): 63, p. 2265.

In this context, it should be noted that the Gulf of Aden and the southern Red Sea have become an area through which Iran supplies weapons and ammunition to terrorist organizations operating in Yemen and the western coast of Saudi Arabia in the Red Sea, using the Revolutionary Guards' naval force. Although the activities of the Iranian Revolutionary Guards Corps (IRGC) and its naval branch are not included in the Global Terrorism Index for 2022 for some reason, the organization appears on the U.S. State Department's Foreign Terrorist Organization list (FTO), and it should continue to be designated as such. To deal with the threat posed by the organization in the Gulf of Aden and the southern Red Sea, in April 2022, the Combined Maritime Forces (CMF) of 34 countries led by the U.S. Central Command (CENTCOM) established a new multinational task force, CTF-153, consisting of 34 countries, that focuses its activities in the Red Sea, Bab el-Mandeb, and the Gulf of Aden. This force is supposed to prevent Iranian weapons from being smuggled to terrorist representatives who are fueling conflicts throughout the Middle East. Observers note that this force must receive adequate resources and support from the United States and its regional partners to be able to prevent weapon smuggling and terrorist attacks in this maritime area, which is vital to the economic and security interests of the United States and the international community, and send a deterrent message to Tehran.<sup>71</sup>

## Piracy and Maritime Robbery

In the first half of 2022, the International Maritime Bureau (IMB), a specialized department of the International Chamber of Commerce (ICC) that monitors crimes related to maritime transportation and trade (such as piracy and commercial fraud and the protection of ship crews), received reports indicating the lowest number of piracy incidents since 1994. In the latest IMB report (January 2022– June 2022), 58 incidents of piracy against ships were recorded, a decrease from 68 incidents during the same period in 2021 (see Figure 11). However, it is important to note that the threat of piracy still exists in certain areas of the world, such as the Malacca-Singapore Straits, the Sulu and Celebes Seas (southeast of the Philippines), the Gulf of Aden in Africa, off the coast of Somalia, and in the Gulf of Guinea in Africa.<sup>72</sup>

The report notes that although there have been no reported piracy incidents in the Red Sea and the Gulf of Aden since the beginning of the year, there is still a piracy threat in this

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<sup>71</sup> Bradley Bowman, Ryan Brobst and Rear Adm. Mark Montgomery (ret.), [New Mideast Task Force can Counter Iranian Arms Smuggling, but More Capabilities are Needed](#), *Defense News*, May 9, 2022.

<sup>72</sup> [Global Piracy and Armed Robbery Incidents at Lowest Level in Decades](#), ICC – Commercial Crime Services, International Maritime Bureau (IMB), July 12, 2022.

area, particularly off the coasts of Yemen and Somalia. Despite the reduced opportunities for incidents, Somali pirates are still capable of carrying out attacks, and all merchant vessels are advised to adhere to the best updated operating procedures when travelling through these areas.<sup>73</sup>

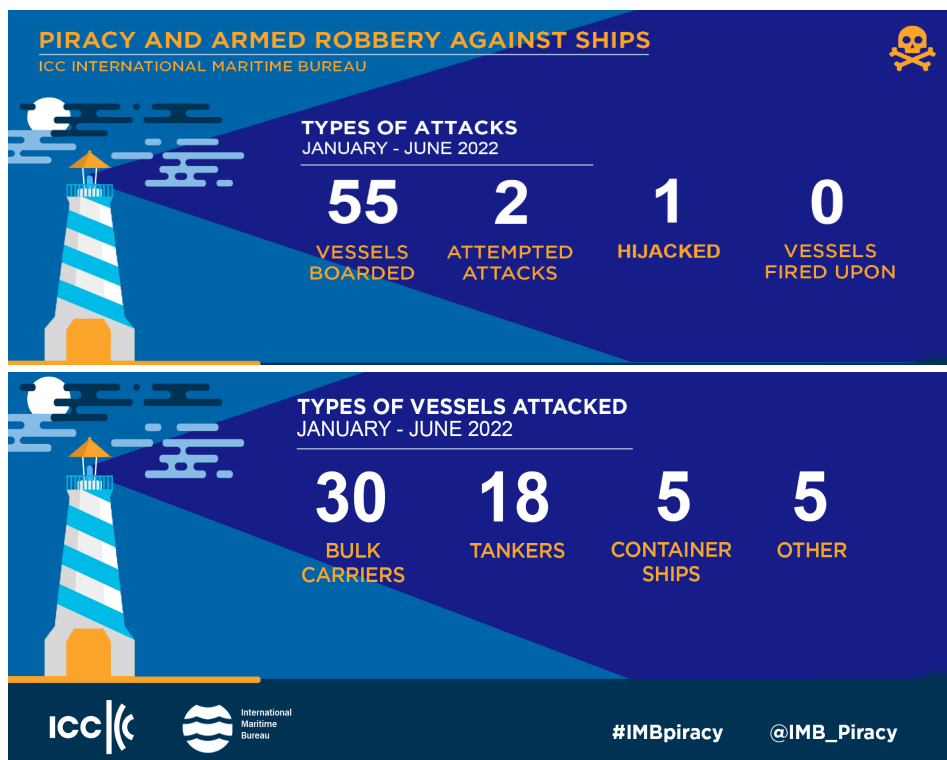
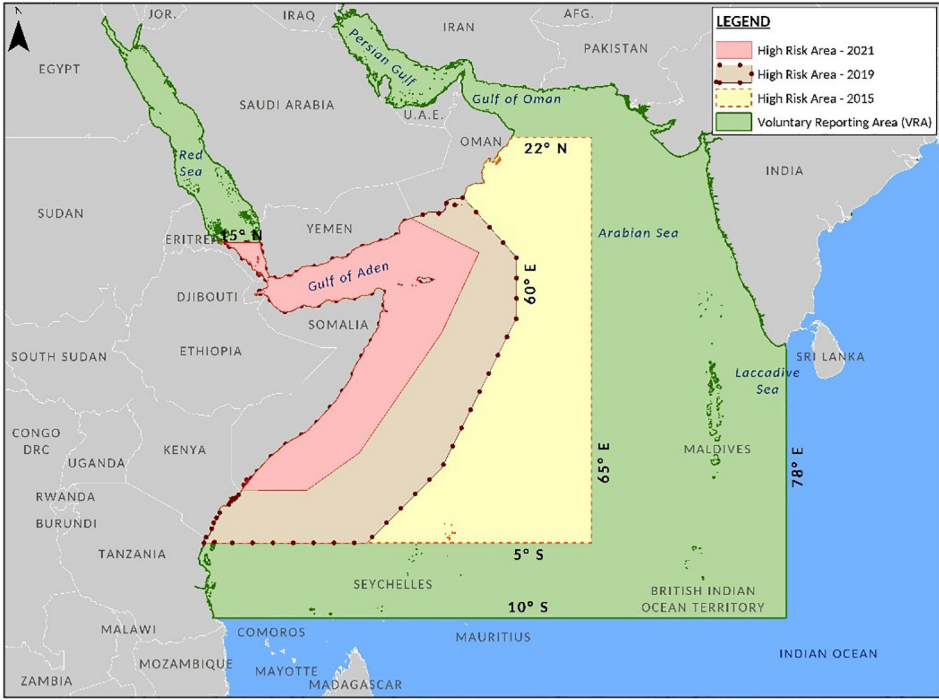


Figure 11: Maritime piracy terrorist incidents (ICC International Maritime Bureau)

Following a continuous reduction in piracy incidents, global shipping and oil industries announced an agreement to reduce the boundaries of High-Risk Areas (HRA) in August 2021. The changes reduced the boundaries to the territorial waters of Yemen and Somalia, and exclusive economic zones in the east and south (see Figure 12).<sup>74</sup>

<sup>73</sup> Ibid.

<sup>74</sup> High Risk Area-HRA Extension and Subsequent Revisions.



© Manohar Parrikar Institute for Defence Studies & Analyses, GIS Section. Map not to scale.

Figure 12: Piracy High Risk Area revisions<sup>75</sup>

### Main Navies – Trends and Changes

A review of the changes and trends in the world's largest navies compared to the previous report of 2021 is presented below, with a focus on each fleet's areas of operation, operational strategy, and navy force structure building. A dedicated section will be devoted to each of these navies' activities in the Middle East, the region where the Maritime Policy & Strategy Research Center primarily focuses its interest.

The Global Naval Powers Ranking for 2023 is updated annually and tracks 35 countries, 35 naval arms, and 2,948 individual units from these arms. The organization uses a formula that takes into account values related to the overall combat power of various navies in the world. The formula generates a true value rating, which helps to differentiate each navy based not only on overall strength but also on its level of modernization, logistical support, offensive and defensive capabilities, and so on. In this way, a navy is evaluated not solely on the basis of the total number of warships and submarines it has, but also on

<sup>75</sup> Anurag Bisen, [Delegitimising China's Naval Presence in the Indian Ocean Region](#), Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA), August 30, 2022.



the quality and overall mix of its overall inventory. In addition, there is a focus on local naval capabilities, the inventory balance (the overall mix of unit types), and the navy's experience.<sup>76</sup> Table 2 below indicates the ranking of various navies for 2022.

Table 2: Global Naval Powers Ranking for 2022

Place	Fleet	Number of units	Score
1	United States	243	323.9
2	China (PLAN)	416	319.8
3	Russian Federation	266	242.3
4	Indonesia	242	137.3
5	Korea	138	122.9
6	Japan	102	121.3
7	India	102	99.1
8	France	66	92.9
9	United Kingdom	51	88.3
10	Italy	54	80.7
11	Turkey	89	76.7
12	Taiwan	91	74.6
13	Egypt	107	72.4
14	North Korea	186	67.9
15	Bangladesh	50	58.6
16	Spain	42	56.0
17	Germany	34	54.7
18	Iran	66	50.3
19	Australia	36	48.9
20	Thailand	86	47.6

These are followed by Greece, Canada, Singapore, Brazil, Portugal, Sweden, the Netherlands, Pakistan, the Philippines, Argentina, South Africa, Saudi Arabia, Ukraine, Belgium, and Turkmenistan. Israel is not included in the rankings. This assessment should be treated with some caution, especially regarding the description of the components used to determine each navy's final score.

## The U.S. Navy

The U.S. Navy is still ranked first in the Global Naval Powers Ranking for 2022, despite the fact that the Chinese navy has surpassed it in terms of the number of vessels it operates.

<sup>76</sup> [Global Naval Powers Ranking 2023](#), Current Ranking of the Various Naval Services of the World Provided by WDMW, Retrieved January 8, 2023.

In the field of strategy, on March 28, 2022, the U.S. Department of Defense presented Congress with the National Defense Strategy (NDS) for 2022.<sup>77</sup> For the first time, the document was presented to Congress after being developed in conjunction with the Nuclear Posture Review and the Missile Defense Review, thus ensuring coordination between the strategic ends and the means to achieve them. It should be noted that this document replaces the 2018 document, written during the tenure of then-Secretary of Defense James Mattis. The earlier document served as a milestone in the U.S. national defense strategy, as it highlighted the United States' focus on China, which is becoming a rival power.

The new document draws on the interim version of the National Security Strategy, issued by President Biden three months after the start of his tenure, which established four national goals: safeguarding America's vital national interests, defending the American people, expanding America's prosperity, and upholding democratic values. The priorities established by this document are:

1. Protecting the homeland while taking into account the increasing multi-domain threat posed by China.
2. Deterrence of strategic attacks against the United States, its territories, and its allies.
3. Deterrence of aggression, preparedness to prevail in conflict if necessary, prioritizing the challenge posed by China in the Indo-Pacific, followed by the challenge posed by Russia in Europe.
4. Building a Resilient Joint Force and a Defense Ecosystem.

The Department of Defense is committed to working vigorously to maintain and strengthen deterrence against China, which is the United States' most important strategic rival and a developing challenge for the Department.

Russia poses serious threats, as demonstrated by its brutal and unprovoked invasion of Ukraine. The United States will be ready to cooperate with its allies and NATO partners to strengthen deterrence against Russian aggression. The Department of Defense will be able to address ongoing threats, including those from North Korea, Iran, and violent extremist organizations.

The Department of Defense will be able to adapt its operations to global climate change and other dangerous cross-border threats, including pandemics, which are increasingly putting pressure on the Joint Force and its supporting systems. The Department of Defense will identify emerging kinetic and non-kinetic threats to the United States'

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<sup>77</sup> [Fact Sheet: 2022 National Defense Strategy](#), U.S. Department of Defense, March 28, 2022.

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sovereign territory from its strategic competitors and take the necessary actions to increase resilience – the ability to withstand, fight, and rapidly recover from disruption.

Mutually beneficial alliances and partnerships are an ongoing source of strength for the United States and critical to achieving its goals, as demonstrated in the united response to Russia's further invasion of Ukraine. In response to a call to action, the Department of Defense will integrate allies and partners with similar perspectives that have capabilities and offer advantages at every stage of defense planning.

The Department will achieve its goals through three main courses of action: integrated deterrence, campaigning, and building enduring advantages.

- Integrated deterrence entails developing and combining the United States' strengths to maximum effect, by working seamlessly across warfighting domains, theaters, the spectrum of conflict, other instruments of U.S. national power, and its unmatched network of alliances and partnerships. Integrated deterrence is enabled by combat-credible forces, with limitations in the areas of weapon safety, security, and a credible, effective nuclear deterrent.
- A campaign will strengthen deterrence and enable the United States to gain advantages against the full range of competitors' coercive actions. It will operate forces, synchronize broader Department efforts, and align Department activities with other instruments of national power to thwart competitors' coercive actions, complicate competitors' military preparations, and develop its own warfighting capabilities together with allies and partners.
- Building enduring advantages for the future Joint Force involves undertaking reforms to accelerate force development, obtaining the required technology more quickly, and making investments in the exceptional personnel of the Department, who remain their most valuable resource. The Department will develop, design, and manage U.S. forces, linking operational concepts and capabilities to achieve strategic objectives. This requires a Joint Force that is lethal, resilient, sustainable, survivable, agile, and responsive.

The requested budget for the U.S. Department of Defense for 2022 is \$705,939 billion, an increase of \$9,978 billion compared to the 2021 budget. The Appropriations Committee of Congress emphasized the following goals in the budget approval:

- Preserving national security, maintaining the United States' advanced manufacturing base, supporting jobs and economic growth, and investing in research and development.
- Closing the detention facility at Guantanamo Bay, which cancels the budgetary ploy of offshore contingency operations and limits U.S. involvement in Yemen.

- Promoting democracy by countering China and investing efforts to protect the Indo-Pacific region as a free and open area.
- Safely evacuating Afghan citizens who provided faithful and valuable service to the United States and who may be at serious risk following the United States' withdrawal.
- Supporting working families by requiring employers to pay a minimum wage of \$15/hour.
- Addressing the climate crisis through investments in clean energy, adapting facilities to climate change, and developing readiness to tackle global security challenges arising from these effects.
- Addressing gender-based violence by allocating resources to address sexual assault in the military and countering extremist ideologies, including white supremacy.

Some of the issues emphasized point to a new democratic agenda, although in relation to the policy against China the goal remains the same.

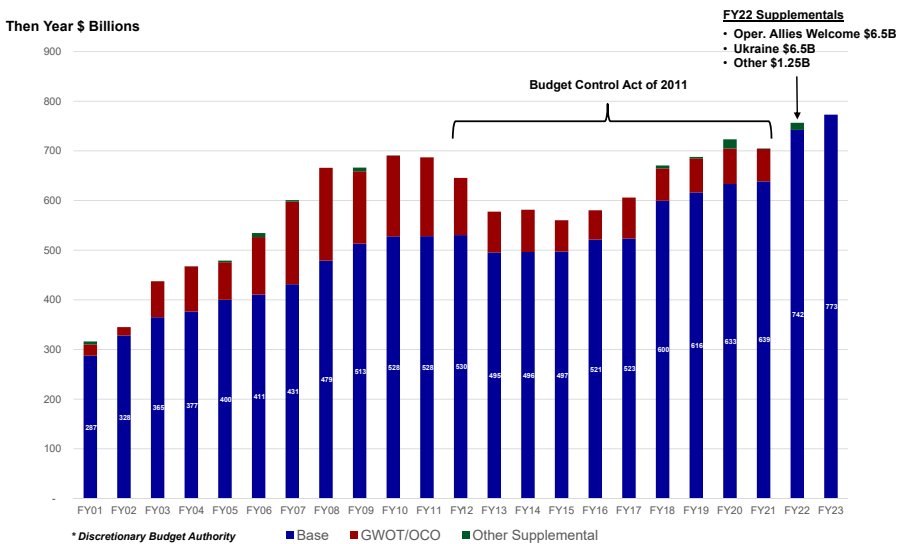


Figure 13: U.S. Department of Defense Budget, 2001–2023<sup>78</sup>

### U.S. Navy's Budget Request for 2023

The U.S. Navy's budget request for 2023, as submitted to Congress, stands at \$230.8 billion and is divided into categories as shown in Table 3 below. The budget request reflects an

<sup>78</sup> Defense Budget Overview, [United States Department of Defense Fiscal Year 2023 Budget Request](#), Office of the Under Secretary of Defense (comptroller)/chief financial officer, March 2022.

increase of \$2.034 billion compared to the 2022 budget. The amounts allocated in 2022 include cancellations from the previous year and additional funding for: Operation Allies Welcome, a Biden administration effort to ensure housing and employment for 70,000 Afghan refugees resettled in the United States; naval assistance in disaster situations; the Red Hill fuel storage facility that supports military operations in the Pacific Ocean; and the War in Ukraine.

Table 3: The U.S. Navy's budget requirement as submitted to Congress

Discretionary Budget Authority in Thousands	FY 2022 Enacted*	FY 2023 Request	Δ Department of the Navy FY23 – FY22
Military Personnel	56,450,125	58,484,305	+2,034,180
Operation and Maintenance	74,383,273	77,704,776	+3,321,503
Procurement	63,101,269	65,985,288	+2,884,019
RDT&E	22,084,416	24,078,718	+1,994,302
Military Construction	4,685,142	3,889,392	-795,750
Family Housing	705,521	447,957	+257,564
Revolving and Management Funds	150,000	0	-150,000
Total Department of the Navy	221,302,182	230,848,000	+9,545,818

The Navigation Plan published in January 2021 by the Chief of Naval Operations (CNO) Adm. Michael Gilday focuses U.S. naval efforts on four main areas: readiness, capabilities, capacity, and sailors. In 2022, the document was updated to reflect changes in the strategic environment stemming from three significant trends:

1. The erosion of reliable military deterrence, especially due to China's rapidly growing military capabilities.
2. Increasingly aggressive behavior on the part of China and Russia that destabilizes the rules-based international order.
3. The accelerated pace of technological change and the expanding impact of the information environment.<sup>79</sup>

Reference to China as the main threat to the U.S. Navy is also expressed in Navigation Plan 2022, in which the Chief of Naval Operations explains the main reasons for this:

Over the past three decades, China has aggressively leveraged its economic power to grow and modernize its military. China has tripled the size of its Navy, expanded its strategic nuclear capacity and capability, advanced its cyber and space capabilities, and constructed a system of sophisticated sensors and long-range precision weapons

<sup>79</sup> United States Navy, Chief of Naval Operations, [Navigation Plan 2022](#), Security Environment (2022): p. 7.

to intimidate neighbors, challenge free and open access to the seas, and place U.S. naval forces at risk. These investments in offensive warfighting systems—across all domains—are aimed at the heart of America's maritime power. China designs its force for one purpose: to reshape the security environment to its advantage by denying the United States military access to the western Pacific and beyond.<sup>80</sup>

Regarding the evolving security environment, the U.S. Navy has set itself the goal of being a "vital decisive naval power in this security environment", arguing that "America cannot cede the competition for influence. This is a uniquely naval mission". Therefore, "a combat-credible U.S. Navy—forward-deployed and integrated with all elements of national power—remains our Nation's most potent, flexible, and versatile instrument of military influence. As the United States responds to the security environment through integrated deterrence, our Navy must deploy forward and campaign with a ready, capable, combat-credible fleet". Accordingly, the document outlines the development directions and technologies that the U.S. Navy will need to cope with in the future, including: "artificial intelligence, ubiquitous sensors, unmanned systems, and long-range precision weapons [that] are proliferating globally, making contested spaces more transparent and more lethal, and transforming how navies will fight in the future".<sup>81</sup>

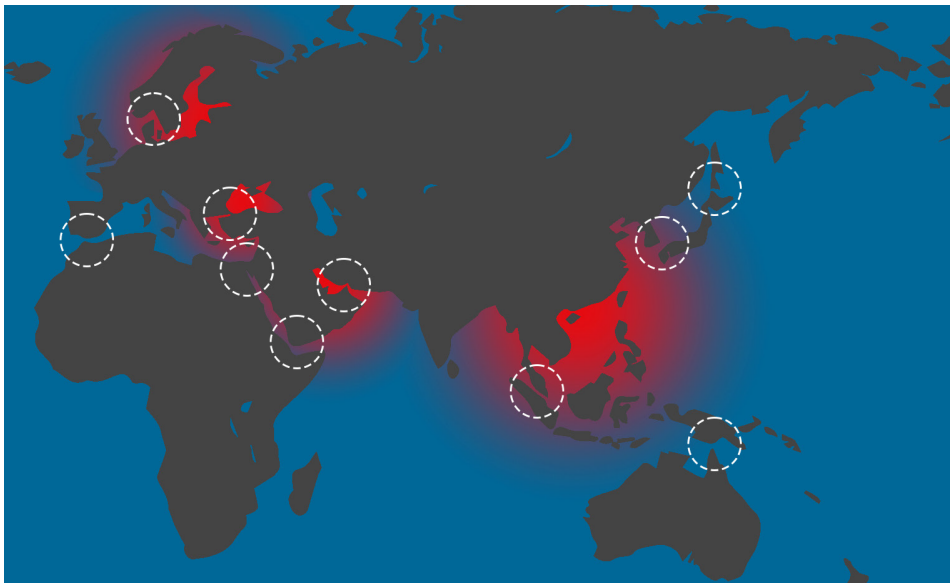


Figure 14: Key maritime regions and geographic chokepoints under increased threat<sup>82</sup>

<sup>80</sup> Ibid. p. 4.

<sup>81</sup> Ibid. p. 5.

<sup>82</sup> Ibid. p. 6.

The document notes that the unique missions and responsibilities of the United States Navy require a larger, more ready, capable, and lethal fleet. To meet these requirements, Adm. Gilday emphasizes the following issues: readiness, capabilities, capacity, and our sailors.

The document emphasizes the Navy's decisive role in strengthening the integrated deterrence provided by its submarine force intended to raise the price paid by adversaries that attack vital U.S. national interests. Integrated deterrence is a safe and reliable strategic nuclear capability. The document notes that the U.S. Navy's submarine force operates and maintains its most survivable leg and represents about 70% of America's deployed nuclear arsenal.<sup>83</sup>

The document addresses the U.S. Navy's composition and primary order of battle from the 1940s onwards, referring to target numbers of more than 350 manned ships, about 150 large unmanned platforms (surface and subsurface), and around 3,000 aircraft. It should be noted that the numbers mentioned are capacity goals and are probably not fully supported by the budget. They include:

- 12 Columbia-class ballistic missile submarines to provide America with an assured deterrent to any strategic attack;
- 12 nuclear-powered aircraft carriers;
- 66 Virginia-class fast-attack submarines;
- 96 large surface combatants, including next-generation missile destroyers;
- 56 Constellation-class frigates;
- 31 large amphibious assault ships, including a core of amphibious assault ships to support Marine Expeditionary Units and light expeditionary shops to provide maritime maneuver for Marine Littoral Regiments;
- Around 150 unmanned surface and subsurface platforms to enhance the fleet's survivability. According the document "this transition will rebalance the fleet away from exquisite, manpower intensive platforms towards smaller, less expensive, yet lethal ones".<sup>84</sup>
- 82 combat logistics (refueling and supply) ships, auxiliary utility repair ships, salvage ships, and hospital ships;
- Approximately 1,300 next-generation manned aircraft and a family of Next Generation Air Dominance systems;

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<sup>83</sup> Ibid. p. 6.

<sup>84</sup> Ibid. p. 10.

- Approximately 900 aircraft for anti-submarine and anti-surface warfare, to include helicopters and maritime patrol and reconnaissance aircraft, all augmented by unmanned aviation systems;
- 750 support aircraft, including intra-theater lift, training, and research and development.

*Order of Battle and Primary Vessel Deployment (as of September 2022)*

The U.S. Navy currently has 299 active ships, including 241 surface ships and 58 submarines. For several years now, the Navy has struggled to surpass the threshold of 300 ships and reach the goal it set for itself.<sup>85</sup>



Figure 15: Estimated locations of U.S. Navy aircraft carrier groups and amphibious groups worldwide, as of September 8, 2022.<sup>86</sup>

Table 4: U.S. Navy vessel deployment worldwide

Underway	Deployed	Total Battle Force
68	111	299
47 deployed, 21 local	USS 75, USNS 36	USS 241, USNS 58

Table 5: U.S. Navy ships belonging to the various fleets worldwide

2 <sup>nd</sup> Fleet	3 <sup>rd</sup> Fleet	4 <sup>th</sup> Fleet	5 <sup>th</sup> Fleet	6 <sup>th</sup> Fleet	7 <sup>th</sup> Fleet	Total
5	1	3	11	29	59	108

<sup>85</sup> [USNI News Fleet and Marine Tracker](#), USNI News, September 8, 2022.

<sup>86</sup> Ibid.



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### *U.S. Marine Corps Organization and Combat Reform*

The art of war is constantly evolving and those who are able to anticipate changes in the nature of warfare are more likely to succeed when the next crisis arises. The ability to innovate in terms of doctrine and technology during peacetime has occupied many researchers in the field, and the results have often been controversial. This is the problem facing the dramatic reform plan designed by the Marine Corps Commandant Gen. David H. Berger. Berger wants to remove previous-generation platforms, such as tanks and artillery, from the Marine Corps and search for new capabilities, such as long-range sensing and precision fire that will better prepare it for future conflicts. Critics of his plan, such as former Navy Secretary Jim Webb, argue that Berger's reform is misguided, but Berger is convinced his ideas as embodied in the reform will better equip the Marines to deal with their main adversary, China.<sup>87</sup> General Berger's Force Design 2030 reforms are close to revolutionary. According to his plan, the Marine Corps will dramatically reduce its artillery and helicopter forces and completely eliminate its tank forces. Several infantry battalions and their supporting elements will be cut. Berger admits that these reforms carry risks and have caused controversy within the Marine Corps. However, he believes the Marines have finite resources that must be organized around maintaining the international democratic order and defeating the greatest threat to America in the world today, China.

In a war with China, which is likely to be primarily amphibious, the U.S. Marines will likely have a central and distinctive role compared to the other arms of the U.S. military. As stated in federal law, the Marines' primary mission is to provide: "service with the fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign". In the South China Sea, this means that Marines may need to operate far from other U.S. assets, out of small land-based facilities that are easily disconnected from the command-and-control support of the U.S. military, intelligence platforms, and long-range and integrated weapons systems. Berger believes the Marines will need to operate as an "organic kill chain" that does not rely on external detection, attack, logistics, and other command-and-control support from the U.S. military. He wants small teams of Marines to be able to seize artificial island areas in the South China Sea. Berger's plan will allow the Marines to quickly establish strong combat units in Taiwan and the Philippines. These units will deploy mobile capabilities of small units against ships, submarines, and aircraft in order to prevent China's People's Liberation Army (PLA) from moving, operating, and replenishing its supply freely. The Marines would then seek to defend these areas as strongholds

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<sup>87</sup> Tom Rogan, [The Marines Are Reforming to Prepare for War with China](#), *WSJ Opinion*, April 4, 2022.

to support the delivery of supplies and project power forward for other U.S. and allied forces, as well as to collect intelligence for attacking Chinese military targets.

Berger's Force Design 2030 plan led to an outcome that the Marine Corps commander probably did not anticipate, sparking a virtual revolt among many retired generals, who spoke out against it. Ironically, Berger's initiatives were generally praised by analysts and policymakers outside the Marine community. Former Navy Secretary Jim Webb explained his critical analysis, saying that: "the traditional respect for the Marine Commander has been replaced by a sense of duty to the Marine Corps and its crucial role in our national security".<sup>88</sup>

*The Impact of the COVID-19 Pandemic on the U.S. Navy's Activity*

On August 9, 2021, the U.S. Secretary of Defense issued a memorandum that starting in mid-September 2021, it would be mandatory for all members of the U.S. security forces, including members of the U.S. Navy and the Marines, to be vaccinated against the coronavirus. As of August 24, 2022, 3,000 active-duty service members and 3,376 reservists remained unvaccinated. A status summary of coronavirus cases in the U.S. Navy and Department of Defense is presented in Table 6 below.

In Navigation Plan 2022 published, as mentioned, by the Commander of the U.S. Navy, Adm. Gilday, the COVID-19 pandemic no longer holds the same importance it did a year earlier and is included in the section on the security environment. Adm. Gilday notes that "COVID-19 demonstrates how rapidly some threats can become global in scope, generating worldwide political and economic instability".<sup>89</sup>

Table 6: U.S. Navy – COVID-19 illness status as of August 2022

	Cases	Hospitalizations	Recovered	Deaths	Total accumulated cases of coronavirus
Military personnel	574	1	104,686	17	105,277
Civilians	1,980	3	59,726	120	61,826
Department of Defense	68	1	12,436	7	12,511
CTR	325	0	15,083	49	15,457
Total	2,947	5	191,931	193	195,071

Source: U.S. Navy COVID-19 Updates

<sup>88</sup> Benjamin Jensen and Matthew Strohmeiermay, [The Changing Character of Combined Arms](#), *War on the Rock*, May 23, 2022.

<sup>89</sup> Navigation Plan 2022, p. 5.

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### *The U.S. Navy's Activity in the Eastern Mediterranean*

In light of the Russian Federation's invasion of Ukraine, attention has been focused on the maritime area of the Black Sea and the Sea of Azov, as well as the chokepoints at their entrances: the Bosphorus and Dardanelles. This area is controlled by the U.S. Navy's Sixth Fleet and NATO's naval forces. Some analysts argue that: "the U.S. and NATO's lack of focus on the Black Sea allowed Russia to pursue aggressive goals, like its invasion into Ukraine". They also argue that despite the strategic importance of the Black Sea and the three NATO member states located along its shores (Turkey, Bulgaria, and Romania), NATO still lacks a coherent and clear strategy for this region. These analysts believe the war in Ukraine has "served almost sort of as a wake-up call" for the U.S. or NATO to begin thinking about their strategy for this region.<sup>90</sup>

The war between Russia and Ukraine has shifted the United States' focus back to Eastern Europe almost 30 years after the end of the Cold War following the dissolution of the Soviet Union. In the past, the United States has minimized the operation of strike groups that include aircraft carriers in the Eastern Mediterranean. However, the conflict between Russia and Ukraine has led to the deployment of a strike group led by the aircraft carrier *Harry Truman* near Greece carrying combat and surveillance aircraft that have been conducting patrols along NATO's eastern borders to prevent further Russian aggression following its attack on Ukraine. This strike group is also expected to serve as a mobile air base on the front line in the event that NATO decides to intervene in the conflict in Ukraine, or NATO forces are drawn into direct conflict with Russia. At the same time, it is important to note that at the beginning of the conflict between Russia and Ukraine, President Biden made it clear that the United States and NATO "will not fight a war against Russia in Ukraine", as "direct conflict between NATO and Russia is World War III".<sup>91</sup>

In late February 2022, following Russia's invasion of Ukraine, Turkey closed the Bosphorus and Dardanelles Straits to warships from any country, whether they border the Black Sea or not. While the closure allowed warships whose home port is in the Black Sea to reach their base, it limited Russia's ability to move ships from its other fleets into the Black Sea. This prevented two Russian Slava-class ships operating in the Mediterranean (the *Marshal Ustinov* of the Northern Fleet operating south of Italy and the *Varyag* of the Pacific Fleet operating off the coast of Syria) from passing through the straits and reinforcing the Russian Black Sea fleet.

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<sup>90</sup> Heather Mongilio, [NATO Need to Turn Attention to Black Sea, European Policy Experts Say](#), *USINAVY News*, September 13, 2022.

<sup>91</sup> Bret Samuel, [Direct Conflict between NATO and Russia Would be 'World War III'](#), *The Hill*, March 11, 2022.

At the outbreak of the conflict, the United States committed to sending Harpoon missile launchers mounted on vehicles to Ukraine to assist it in defending itself against Russia's Black Sea Fleet. The missiles were sent by NATO member states such as Denmark, and they improved the capabilities of the Ukrainian Navy. In June 2022, the U.S. Department of Defense announced its intention to provide the Ukrainian Navy with 18 Mark VI patrol boats as part of its continued assistance to Ukraine against the Russian invasion.

The U.S. Navy and NATO's annual joint exercise, Sea Breeze 2022, which was supposed to take place in the Black Sea in the summer of 2022 was canceled and instead, an exercise by the same name was held in mid-July 2022, but far from the combat zone between Russia and Ukraine, near the city-ports of Bulgaria in the Black Sea. The exercise involved 24 ships, five planes, and two helicopters and was NATO's first major exercise since the start of Russia's recent invasion of Ukraine. U.S. ships were not involved in the exercise; however, American personnel and planes did participate.<sup>92</sup>

Due to Israel being transferred to the United States Central Command (CENTCOM) and the Israeli Navy and Fifth Fleet's increased joint activity, the number of the Israeli Navy and Sixth Fleet's joint exercises decreased in 2022 compared to previous years.

### *The U.S. Navy's Activity in the Red Sea and Gulf of Aden*

The U.S. Naval Forces Central Command is responsible for an area of approximately 2.5 million square miles that includes the Persian Gulf, the Gulf of Oman, the northern Arabian Sea, the Gulf of Aden, and the Red Sea. Its main missions are to conduct maritime security operations, theater security cooperation efforts, and strengthen the maritime capabilities of partner nations to promote security and stability in the U.S. Fifth Fleet's operational area.



Figure 16: U.S. Fifth Fleet Headquarters in Manama Bahrain<sup>93</sup>

<sup>92</sup> David Brennan, [U.S. Navy Cancels 'Essential' Black Sea Drills Over Russia-Ukraine War](#), *Newsweek*, July 25, 2022.

<sup>93</sup> [War against terror, Shaikh Isa Air Base and U.S. 5th Fleet headquarters](#), *CNN*, Retrieved December 22, 2022.

### *The U.S. Fifth Fleet's Response to Repeated Provocations by the Iranian Navy*

The Fifth Fleet operates in, among other areas, the tense area of the Persian Gulf amid the ongoing negotiations over the Joint Comprehensive Plan of Action (JCPOA) between the United States, other members of the Security Council, Germany, the European Union and Iran. The fleet's activity is aimed at containing such events, which influences its response to recurring provocations by Iranian forces and proxies. For example, in May 2022, the Islamic Revolutionary Guard Corps stopped two Greek oil tankers in the Persian Gulf due to a dispute between the two countries over the fate of an Iranian oil cargo aboard a Russian-flagged vessel that was seized by Greece in April. This took place shortly after Tehran warned it would retaliate against Athens due to the U.S. confiscation of Iranian oil from a tanker sailing in the northern Aegean Sea. Greece had stopped the tanker as part of the sanctions imposed on Russia by the EU following its invasion of Ukraine in February 2022. The United States, through the Fifth Fleet, did not respond to Iran's seizure of the Greek tankers.<sup>94</sup>

In February 2022, the Fifth Fleet announced the establishment of an additional integrated task force, Task Force 153, to specifically address maritime threats in the Red Sea and Gulf of Aden. The Fifth Fleet assumed leadership of the task force upon its establishment, but stated that it would transfer leadership to a regional partner in the future. In September, it was announced that command of the task force would be transferred to the Egyptian Navy. Task Force 153 was established pursuant to the activities of three previous task forces in the CENTCOM area of responsibility: Task Forces 150, 151, and 152. Task Force 150 operates outside the Persian Gulf, in the Gulf of Oman, and in the northern Arabian Sea, and is apparently led by a Saudi naval officer. Task Force 151 operates to prevent maritime piracy throughout the Fifth Fleet's area of responsibility, and Task Force 152 operates within the Persian Gulf. Task Force 153 will operate from the Gulf of Aden, through the Bab el-Mandeb Strait and up to the Yemen-Oman border.<sup>95</sup>

In early September, the U.S. Navy intercepted an Iranian war ship that had seized two unmanned Sailer Explorer vessels operated by the Fifth Fleet in the Red Sea, two days after Iran failed to seize a similar vessel in the Arabian Sea. The unmanned vessels were unarmed and were taking unclassified photographs of the surrounding area as they navigated through a selected area that was at least four nautical miles away from the

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<sup>94</sup> [Iran Seizes Oil Tanker it Alleges was Smuggling 11 Million Liters of Fuel in Gulf](#), *The Times of Israel*, October 31, 2022.

<sup>95</sup> Megan Eckstein, [Combined Maritime Forces Establishes New Naval Group To Patrol Red Sea Region](#), *Defense News*, April 13, 2022; Mike Wagenheim, [U.S. Navy Extends Activities in Middle East in Cooperation with Allies](#), *The Media Line*, December 5, 2022.

nearest maritime traffic route. The vessels did not pose a threat to maritime traffic and operated in the general vicinity of the southern Red Sea for more than 200 consecutive days without incident.<sup>96</sup>

### *Cooperation with the Israeli Navy*

In early February 2022, then-Israeli Defense Minister, Maj. Gen. Res. Benny Gantz, and Commander of the Israeli Navy, Adm. David Sa'ar Salma, visited the U.S. Fifth Fleet base in Manama, Bahrain. Minister Gantz emphasized the importance of the relationship between the three countries in light of increasing threats from Iran. The visit took place while tensions in the Gulf were at a peak, with the attacks of the Iranian-backed Yemen-based Houthi militia against the United Arab Emirates having intensified significantly. Minister Gantz stressed the importance of the cooperation between Israel, the U.S. Fifth Fleet, and the Gulf States in the face of growing challenges in the maritime front in particular and the region in general.<sup>97</sup> In mid-February 2022, then-Prime Minister Naftali Bennett also met with the Commander of the U.S. Fifth Fleet, Vice Adm. Brad Cooper, during his official visit to the country. These visits demonstrate the importance Israel places on its relationship with the U.S. Central Command and the Fifth Fleet in particular, given the increasing tension in the maritime arena with Iran's naval forces in the Persian Gulf and southern Red Sea.

Starting from Israel's integration into the CENTCOM and in light of the increasing Iranian threat to Israeli maritime freedom in the southern Red Sea and the Gulf of Aden, the two navies held close security coordination and joint exercises on a range of topics. On March 27, 2022, the Israeli Navy and the U.S. Fifth Fleet conducted a ten-day joint exercise, *Intrinsic Defender*, focusing on maritime security operations, explosives disposal, medical issues, and unmanned systems integration. More than 300 U.S. personnel participated in the exercise, including a U.S. Navy explosive ordnance disposal dive team, U.S. Coast Guard maritime engagement team, and global health engagement team. U.S. Navy guided-missile destroyer USS *Cole* (DDG 67), dry cargo ship USNS *Wally Schirra* (T-AKE 8) and various unmanned vessels also participated in the exercise. It is worth noting that U.S. destroyer USS *Cole* was attacked in October 2000 by an explosive boat while docking in the Port of Aden. The USS *Cole* has been operating in the U.S. Fifth Fleet area of operations to support security stability in the region since January 4, 2022.<sup>98</sup>

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<sup>96</sup> [U.S. Navy Statement on Iranian Incident in Red Sea](#), U.S. Naval Forces Central Command, *NAVCENT Public Affairs*, September 2, 2022.

<sup>97</sup> Judah Ari Gross, [Visiting U.S. Fleet in Bahrain, Gantz Hails Ties While Warning of Threat from Iran](#), *The Times of Israel*, February 3, 2022.

<sup>98</sup> [U.S. and Israeli Navy Begin Exercise Intrinsic Defender](#), U.S. Naval Forces Central Command, March 27, 2022.

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At the beginning of August 2022, Israeli and U.S. naval forces conducted a four-day joint naval exercise in the Red Sea. The exercise was a bilateral training event focused on mission planning, maritime interdiction, and other exercises in the northern Red Sea. The exercise involved the U.S. Fifth Fleet's *Nitze*, USS *Lewis B. Puller* and USNS *Matthew Perry*, and the Israeli Navy's INS *Eilat* and INS *Keshet* participated. The increasing number of joint maritime exercises and meetings between senior officials in the Israeli security forces and their American counterparts indicate the deepening security cooperation and coordination taking place between the two navies in light of the challenges they both face in this complex area.

### The Chinese Navy (the People's Liberation Army Navy –PLAN)

The Chinese Navy is ranked second in the world in the 2022 Global Naval Powers Ranking. The growing importance of China's maritime interests, which have already been reported in previous situation assessments, has led the Chinese navy to continue increasing the frequency, duration, and range of its operations beyond China's shores. This activity is consistent with the emphasis placed on operating in the maritime domain in China's May 2015 white paper under the title "Defense on the High Seas".

The August 2021 report to the U.S. Congress on the modernization of the Chinese Navy and its implications for U.S. naval capabilities deals with several issues related to the strengthening of the Chinese Navy and its operational strategy. The report emphasizes that the Chinese Navy is undoubtedly the largest in East Asia and that in recent years it has surpassed the U.S. Navy in the number of combat ships (although not in quality), a fact that makes the Chinese Navy the largest in the world in numerical terms. Its ships, aircraft, and weapons systems are modern and have many more capabilities than those that it had in the early 1990s. Today they can be compared in many respects to those of modern Western navies and it is possible to say that "the design of Chinese naval vessels and the quality of materials used are in many cases similar to those of the U.S. Navy."<sup>99</sup> The report further states that the Chinese navy is rapidly closing the gap in all areas. In the event of a military conflict between the countries, the Chinese navy is perceived as a significant challenge to the U.S. Navy, especially in relation to gaining control of "blue water" areas in the western Pacific Ocean – a challenge the U.S. Navy has not faced since the end of the Cold War. Accordingly, the report notes that China wants to continue to build up its navy so it can implement an anti-access, area denial (A2/AD) strategy and deter the United States from intervening in a conflict, should one occur in the South China Sea, the area of the Island of Taiwan Strait, or another scenario. If it fails to do so,

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<sup>99</sup> [China Naval Modernization](#): Implications for U.S. Navy Capabilities—Background and Issues for Congress Updated August 3, 2021 p. 3.

it will delay or reduce the effectiveness of U.S. military forces seeking to intervene in the conflict. In addition, the Chinese Navy will need to secure China's sea lanes, including against piracy, during the evacuation of Chinese citizens from foreign countries when necessary, and will have to be responsible for providing humanitarian assistance in cases of natural disasters (humanitarian assistance and disaster relief).

Although China's naval modernization has significantly improved its maritime capabilities, the assessment is that the Chinese navy is limited in its capabilities in the following areas: anti-submarine warfare (ASW), long-range targeting, training a large number of crew members for its new ships, command unity, and lack of combat experience. It should be noted that China is aware of these gaps and is working to narrow or overcome them.<sup>100</sup>

In addition to modernizing its navy, China has also significantly expanded its coast guard in recent years. China's coast guard is undoubtedly the largest among East Asian countries. China also operates a large naval militia with a large number of fishing vessels, as was evident in the early stages of the economic water dispute with the Philippines. With the navy operating as a potential backup force, China relies primarily on its naval militia and coast guard to assert and defend its maritime claims in its nearby waters.

### *The Chinese Navy's Force Buildup Plan*

This section of the report provides a brief overview of the components of the Chinese navy's development and modernization efforts in recent years. At the end of 2021, the Chinese navy had 355 ships, and the U.S. Department of Defense estimates that by 2025 it will increase its fleet to 420 ships and by 2030 to 460 ships. The 355 ships include surface ships, submarines, aircraft carriers, ocean-going amphibious ships, minesweeper ships, and auxiliary forces (see Table 7). This number does not include 85 patrol and anti-ship cruise missile-carrying ships (ASCM). The Chinese navy's surface ship fleet is organized into three fleets: the North Sea Fleet, the East Sea Fleet, and the South Sea Fleet (see Figure 17).

In 2021, the Chinese navy launched 32 vessels, including a Type 075 landing helicopter dock, one submarine, and several destroyers. The submarine is a Type 094 ballistic missile submarine, which was developed by the Chinese and is expected to gradually replace the Type 092 submarine. The next model, Type 096, is already in early development stages. The large Type 055 destroyer is a class of stealth guided missile destroyer and a multi-mission ship. The combination of sensors and weapons suggests a main role of area air

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<sup>100</sup> To learn about China's multi-layered strategy regarding defense of its shores, see Shaul Chorev, "Key Naval Fleets – Trends and Changes", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2020/21* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2021), pp. 66–67.



defense, with anti-submarine warfare capabilities surpassing previous Chinese surface combatants (see Figure 18).<sup>101</sup>

Table 7: Types and quantities of vessels in the Chinese Navy

### Numbers of Chinese and U.S. Navy Battle Force Ships, 2000-2030

Figures for Chinese ships taken from ONI information paper of February 2020

	2000	2005	2010	2015	2020	2025	2030
Ballistic missile submarines	1	1	3	4	4	6	8
Nuclear-powered attack submarines	5	4	5	6	7	10	13
Diesel attack submarines	56	56	48	53	55	55	55
Aircraft carriers, cruisers, destroyers	19	25	25	26	43	55	65
Frigates, corvettes	38	43	50	74	102	120	135
<b>Total China navy battle force ships, including types not shown above</b>	<b>110</b>	<b>220</b>	<b>220</b>	<b>255</b>	<b>360</b>	<b>400</b>	<b>425</b>
<b>Total U.S. Navy battle force ships</b>	<b>318</b>	<b>282</b>	<b>288</b>	<b>271</b>	<b>297</b>	<i>n/a</i>	<i>n/a</i>

**Source:** Table prepared by CRS. Source for China's navy: Unclassified ONI information paper prepared for Senate Armed Services Committee, subject "UPDATED China: Naval Construction Trends vis-à-vis U.S. Navy Shipbuilding Plans, 2020-2030," February 2020, 4 pp. Provided by Senate Armed Services Committee to CRS and CBO on March 4, 2020, and used in this CRS report with the committee's permission. Figures are for end of calendar year. Source for figures for U.S. Navy: U.S. Navy data; figures are for end of fiscal year.

**Note:** n/a means not available.



Figure 17: Deployment of the Chinese Navy and Major Headquarters<sup>102</sup>

<sup>101</sup> [Analysis: List of Chinese Navy Vessels Commissioned in 2021](#), *Navy Recognition*, January 25, 2022

<sup>102</sup> Mallory Shelbourne, [China Has World's Largest Navy With 355 Ships and Counting, Says Pentagon](#), *UNSI News*, November 3, 2021.

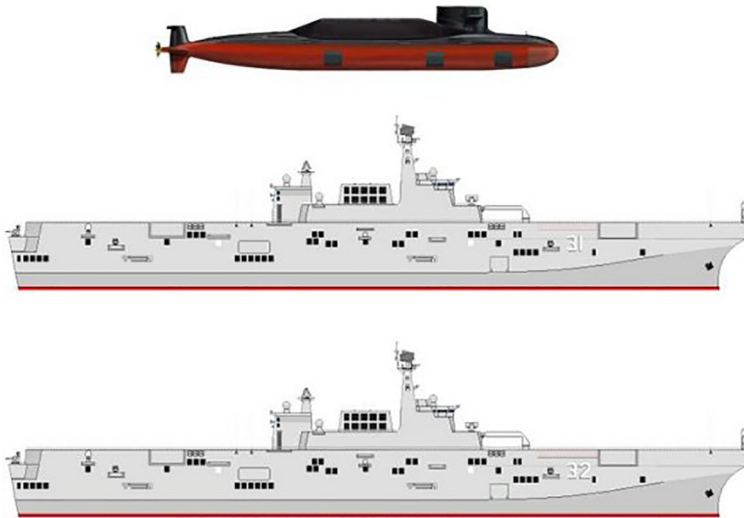


Figure 18: Type 094 submarine, Type 075 LHD Hainan and Type 075 LHD Guangxi Twitter account of Louis Cheung HK<sup>103</sup>

China is building a large number of additional Type 075 amphibious assault ships with the goal of establishing an expanded expeditionary force capable of conducting "three-dimensional" operations involving air, sea, and land forces from multiple directions. This growing force will complement the rapidly expanding Chinese Marine Corps, which has grown from two to six operational brigades in less than a decade. The multi-role Z-20 helicopter, which has similar characteristics to those of the American Black Hawk, has been introduced into Chinese naval service and converted for anti-submarine warfare and other missions. This is a significant addition, particularly for the Chinese Marine Corps.

In the fifth session of the 13<sup>th</sup> National People's Congress in early March 2022, the Chinese government announced a defense budget of 1.45 trillion yuan (approximately \$229 billion) for the 2022 fiscal year, a 7.1% increase from the 2021 budget.<sup>104</sup> After years of double-digit increases in the 2000s and early 2010s, this is the seventh consecutive year in which China's defense spending has grown at a single-digit rate. However, China has risen in the global rankings and is now second only to the United States in defense spending. In the Indo-Pacific region, China's military spending is progressively dwarfing that of its neighbors. According to the Stockholm International Peace Research Institute (SIPRI), China now spends more on its military than Japan, South Korea, the Philippines,

<sup>103</sup> Analysis: List of Chinese Navy Vessels Commissioned in 2021, 2002

<sup>104</sup> Hauxia, [Explainer: Prudent Chinese Defense Budget Growth Ensures Broad Public Security](#), *Xinhua*, March 5, 2022.

and India combined.<sup>105</sup> For example, China's \$229 billion defense budget is more than three times that of India, which stands at \$70 billion for 2022. China's increase in defense spending is a red flag for its neighbors and the United States in light of the growing tensions over Taiwan, the South China Sea, the East China Sea, and the China-India border conflict in the Himalayas.

Very little is known about the costs of weapons and equipment produced by the Chinese security industry or the amount of money allocated to research and development. The lack of transparency in China's security spending raises concerns regarding its strategic intentions.<sup>106</sup> It is also difficult to know what the budget share allocated to the Chinese navy is. Using its computerized analysis tools and its database, a study by the U.S. Center for Strategic and Budgetary Assessments found that China has the resources necessary to continue its modernization process throughout the 2020s and will be able to expand its capabilities and size, so that by 2030, it will have up to five aircraft carriers and ten nuclear ballistic missile submarines (see Figure 19).<sup>107</sup> Most of China's submarines are non-nuclear-powered attack submarines (SSS). However, China also operates a limited number of nuclear-powered attack submarines (SSN) and even fewer nuclear-powered ballistic missile submarines (SSBN). The estimate is that the number of its nuclear-powered attack submarines (SSNs) and ballistic missile submarines (SSBNs) will increase in the coming years. China currently has two types of fixed-wing aircraft carriers, and at takeoff, they rely on a ski ramp, the latest of which, *Shandong*, was put into active service in the summer of 2021. The Chinese are expected to complete the construction of their fourth aircraft carrier by the end of the current decade, which will be similar in size to American aircraft carriers and equipped with catapult stopping systems. All of China's aircraft carriers are conventionally powered. Despite their importance, experts estimate that these aircraft carriers will not be a major component of any military operation against Taiwan, as Taiwan's proximity to the mainland allows China to operate its air force from land bases in China.

When China offers to build infrastructure for the production of eight submarines in the Karachi shipyard in Pakistan, along with supplying four frigates and setting up the infrastructure to accommodate the vessels after their construction is complete, and manages to compete with other Western actors with similar capabilities, it is clear that

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<sup>105</sup> [World Military Expenditure Passes \\$2 Trillion for First Time](#), SIPRI, April 25, 2022.

<sup>106</sup> Amrita Jash, [China's 2022 Defense Budget: Behind the Numbers](#), *China Brief*, 22, no. 8, April 29, 2022.

<sup>107</sup> Jack Bianchi, Madison Creery, Harrison Schramm and Toshi Yoshihara, [China's Choices, A New Tool for Assessing the PLAN's Modernization](#), The Center for Strategic and Budgetary Assessments CSBA, 2022.

there is a significant subsidy component that enables it to carry out the aforementioned projects. Moreover, these resources are part of the soft power that China exercises in the Indo-Pacific region to expand its influence in the area.<sup>108</sup>

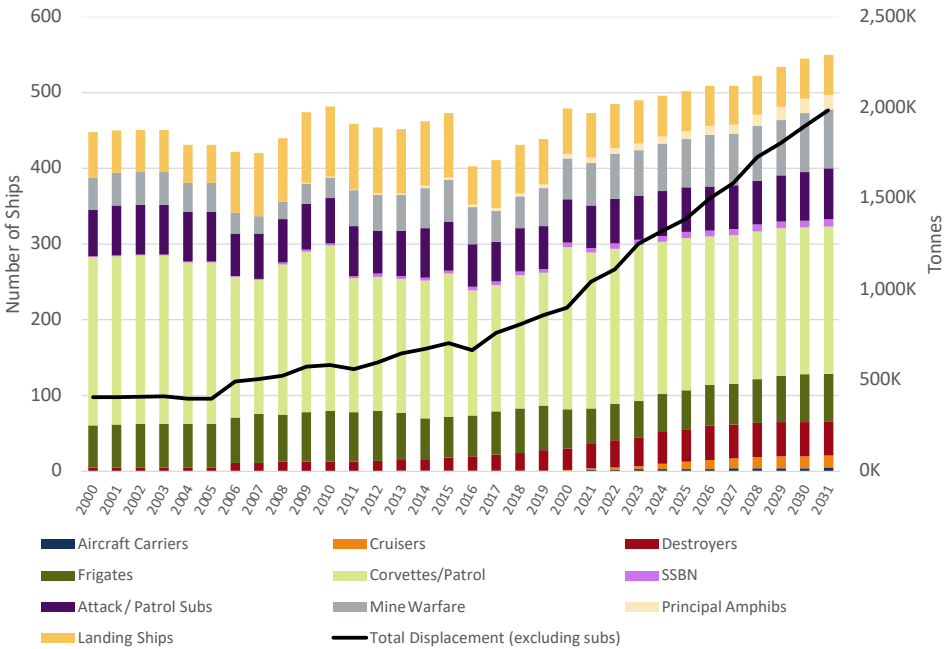


Figure 19: Projected cost-informed PLA Navy force structure<sup>109</sup>

### Anti-Surface Vessels Missiles

As mentioned, China's defense plan is based on naval vessels and combat tools allocated to its three land commands. A large part of China's firepower is based on land-based ballistic missiles. China operates two types of land-based ballistic missiles that have the ability to strike naval vessels: the DF-21D, an anti-ship ballistic missile (ASBM) with a range of about 1,500 kilometers (more than 910 nautical miles), and the DF-26, an intermediate-range ballistic missile (IRBM) that can be transported on highways and has a maximum range of about 4,000 kilometers (2,160 nautical miles). A Pentagon report indicates that they are capable of carrying out conventional and nuclear precision strikes against ground targets and conventional attacks against naval targets. In a November 2020 news report,

<sup>108</sup> [Project 75 – As China Arms Pakistan With Lethal Submarines, Is Indian Navy 'On Backfoot' Despite Being A Global Naval Power?](#) *The EurAsian Time*, September 21, 2022.  
<sup>109</sup> [China's Choices, A New Tool for Assessing the PLAN's Modernization](#). p. 45. Fig. 10.

it was noted that a successful test of both types of missiles was carried out in August 2020 against moving sea targets south of the Paracel Islands. In late 2020, Adm. Philip Davidson, Commander of the Indo-Pacific Command, confirmed for the first time that the Chinese had successfully tested a ballistic missile against ships and that China is also developing hypersonic glide vehicles, which, when integrated with missiles, would make their interception extremely difficult. These types of missiles move five times faster than the speed of sound, can destroy aircraft carriers without a warhead, and cannot be tracked. China holds the lead in developing this technology. Russia claims to have completed the development of hypersonic glide vehicles, and the United States is also currently developing these missiles, but has no means of intercepting and shooting them down at this stage. Hypersonic glide vehicles integrated with naval control and guidance systems will enable China to attack other U.S. aircraft and naval vessels operating in the Pacific Ocean. The U.S. Navy has not previously faced the threat of a precise ballistic missile with effective penetration capabilities, and it describes this weapon as a "game-changer". China recently launched a hypersonic glide vehicle in a drill near Taiwan in August 2022.<sup>110</sup>

China also has a very large stockpile of Russian and Chinese-made anti-ship cruise missiles (ASCM), including several advanced models with high capabilities, such as the Chinese-made YJ-18. The relatively long ranges of Chinese anti-ship missiles are a concern for the U.S. Navy in terms of the superiority of its sea-based missiles, for example in aspects such as their range.

### *China's Activity in the Middle East*

China continues to deepen its involvement in the Middle East and the Eastern Mediterranean, using its deep pockets to ensure influence over key allies in the region as a means to promote its global aspirations. The plan to develop and expand the Maritime Silk Road – which will essentially connect China to the Mediterranean Sea via the South China Sea, the Indian Ocean, and the Suez Canal – is a vital component of China's Belt and Road Initiative (BRI). Strategic maritime chokepoints along these shipping routes provide further impetus for Beijing to funnel more money into investment and infrastructure projects in the Middle East. As one of the world's largest oil consumers, China, which purchases oil from Saudi Arabia, Oman, Kuwait, Iraq, and the United Arab Emirates, has increased its oil imports from Iran in recent years, benefitting from cheaper rates due to the embargo. The Biden administration has decided not to impose sanctions at this stage on Chinese individuals or companies trading with Iran in order not to harm ongoing

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<sup>110</sup> Shannon Bugos, [China Showcases Hypersonic Weapon Near Taiwan, U.S. Test](#), *Arms Control Association*, September 2022.

negotiations between the five permanent members of the Security Council and Germany. It also doesn't want to endanger Iran's return to the 2015 agreement (JCPOA). In order to protect its strategic interests, China is likely to further strengthen its military ties with Iran, which will heighten regional tensions. As the United States reduces its presence in the Middle East, China is increasing its diplomatic and economic involvement in the region. China has already signed prominent agreements with long-standing U.S. partners such as Saudi Arabia and managed to maintain close ties with Iran. While China has emphasized its ties with Iran, it has also increased its economic cooperation with Iran's rivals in the Middle East, in line with Beijing's strategy of focusing on a "cautious balance". China has deepened its economic ties with other Gulf countries such as Saudi Arabia, the United Arab Emirates, Bahrain, Qatar, Kuwait, and Oman, particularly in infrastructure, telecommunications, technology, and energy – all critical areas for China's BRI. In 2021, China invested \$10.5 billion in the Belt Route Initiative and energy-related projects in Iraq, which is its third-largest oil supplier after Saudi Arabia and Russia. China has deepened its infrastructure cooperation with Saudi Arabia in recent years and is now involved in projects to renovate the Kingdom's Grand Mosque. Even as the United States withdraws from the Middle East, some in the U.S. foreign policy community believe the region will be among the places where intense power competition between the United States and China will materialize. China is heavily involved in crucial projects in Egypt, particularly in the construction of Egypt's new administrative capital, where Chinese state-owned companies are building the central business district. China has reoriented and intensified its economic ties with Egypt over the past two decades, and Chinese organizations have a special interest in Egypt given its strategic location and potential to serve as an important regional production and transit center. China has widely penetrated the Egyptian market after the opening of the Suez Canal Economic Zone and remains the largest investor in the Suez Canal Development Zone, which is Beijing's most important shipping route to Europe. The naval base in Djibouti, which officially opened in 2017, was initially established to support the Chinese mission against piracy off the coast of Somalia in the Gulf of Aden, but over time, it has expanded and can now serve as a logistics supply point for its blue-water navy ships, such as the new Type 075 amphibious assault ship or the recently commissioned aircraft carriers. In May 2022, the 41<sup>st</sup> Chinese naval escort task force set off for the Gulf of Aden and Somali waters from a military port in Zhoushan, Zhejiang Province in eastern China. The task force replaced the 40th task force that had been operating in the region for the past few months. The task force consists of the Suzhou guided-missile destroyer, the Nantong guided-missile frigate, and the Chaohu supply ship, which also carries two helicopters and dozens of special operations soldiers. This is the first time the Suzhou and Nantong ships have performed escort missions. Task forces like

these typically consist of three to four ships deployed for three to four months, spending most of that time at sea.<sup>111</sup>

In late January 2022, Iran, Russia, and China held joint naval exercises for three days in the Indian Ocean with the aim of strengthening "shared security". In 2022, unlike in the past, there were no naval exercises or Chinese Navy fleets in the Mediterranean Sea, but according to various reports, China is continuing to promote its interests in the Eastern Mediterranean. Cyprus's geographical location, its membership in the European Union, and its importance as a transport hub have been of interest to China in the past year. In November 2021, China and Cyprus officially announced their strategic partnership on the 50th anniversary of their diplomatic relations, which is significant and a milestone in their bilateral relations. The two heads of state decided to upgrade China-Cyprus relations to a strategic partnership. The Chinese view is that Cyprus' central location between Europe, Asia, and Africa should play an important role in China's efforts to expand its influence in the Eastern Mediterranean. Cyprus is perceived in China as being located in an important geostrategic position and as having a developed shipping sector, gas reserves in its exclusive economic zone, and experience in the financial sector. China can leverage the geographical advantages of Cyprus's ports to facilitate and increase the volume of goods transferred from China and the Far East to the European Union, the Balkans, and the Black Sea region, and vice versa.<sup>112</sup>

Algeria and China are on the verge of signing several cooperation memorandums and transfer of technology agreements (ToT) in the field of military training and military production. Under the military agreements, Algeria will receive armored vehicles, tanks, naval vessels, and radar systems. In return, Algeria will become China's first logistics and supply center in the Mediterranean Sea. This development raises concern among NATO countries, particularly France, which sees this move as threatening its long-standing interests in Algeria.<sup>113</sup>

Western analysts argue that while economy, trade, and investment are the cornerstones of Beijing's balancing act, maintaining security and stability in the region is crucial in order to continue this momentum. However, this becomes difficult in the absence of any strong collective and inclusive security arrangement. Without such arrangements, analysts predict that: "China could be more assertive and use its economic and political

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<sup>111</sup> Li Jiayao, [China's 41st Naval Escort Taskforce Sets Off for Gulf of Aden](#), *China Military Online*, May 19, 2022.

<sup>112</sup> Mordechai Chaziza, [Cyprus: The Next Stop of China's Belt and Road Initiative](#), *The Diplomat*, December 21, 2021.

<sup>113</sup> [Algeria, China Sign a Strategic Cooperation Plan](#), *Asharq Al-Awsat*, November 9, 2022

tools directly and indirectly by influencing the powerful and ruling elites in the region to protect its strategic interests upon reaching a difficult position in the delicate balancing act".<sup>114</sup>

### *Tension with Taiwan*

China only controls Mainland China and does not have control over Taiwan; however, it claims that Taiwan is part of its territory under the "One China Principle". Strategically, if China gains control over Taiwan, it could expand its activities beyond the first island chain, which includes a line of countries that have security agreements with the United States, including Japan and the Philippines, to the Pacific Ocean. China could, then, ostensibly, escape the detection and control of the U.S. Navy and its allies in the region. The first island chain currently provides a defensive ring for the United States and its allies. Thus, China gaining control over Taiwan would open up the western Pacific to Chinese military expansion.

It is important to remember that the Taiwan Strait is one of the busiest shipping lanes in the world, with nearly half of the global container fleet using the strait in the past year. China has the ability to impose a blockade on this strait, and various parties in the West are attempting to envision what would ensue in the event of such a scenario unfolding.<sup>115</sup> A blockade would undoubtedly cause severe damage to the global economy and lead to additional delays in the global supply chain, which is already facing significant difficulties and delays due to the COVID-19 pandemic and the conflict between Russia and Ukraine.

In response to then-U.S. Speaker of the House Nancy Pelosi's visit to Taiwan in early August 2022, China deployed fighter jets, ships, and missiles for 72 hours of exercises. It announced six exercise zones around Taiwan, including off the island's eastern coast, in an effort to project its power beyond the Chinese mainland. During this time, China also conducted live-fire drills lasting until August 7. The trajectory of at least one of the missiles fired eastward and passed over Taiwan's capital, Taipei, landing in the Pacific Ocean within Japan's exclusive economic zone. Since Pelosi's arrival in Taiwan, government websites in Taiwan have crashed due to cyber-attacks, most likely originating from China.

The events surrounding Pelosi's visit to Taiwan and China's dramatic response have led some U.S. foreign policy analysts to ask: "Why isn't the United States doing more to prepare for war with China over Taiwan – precisely to deter and thus avoid it?" According

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<sup>114</sup> Nadeem Ahmed Moonakal, [The Impact and Implications of China's Growing Influence in the Middle East](#), *The Diplomat*, July 9, 2022.

<sup>115</sup> Chris Buckley, Pablo Robles, Marco Hernandez and Amy Chang Chien, [How China Could Choke Taiwan](#), *The New York Times*, August 25, 2022.



to them, recent events have highlighted the severity of the issue, and a war with China over Taiwan has shifted from what many once saw as a remote scenario to a fearfully plausible one. These analysts point out that despite this alarming reality, the United States does not seem to be adequately preparing for such a conflict, despite a strengthening commitment towards Taiwan, especially by the Biden administration.<sup>116</sup>

## The Russian Federation Navy

Since the beginning of the latest wave of reforms in Russia's armed forces in 2009, the Russian leadership has been conveying the message that the Russian Navy's crisis period is over, that it is returning to its former glory, and that it is capable of carrying out missions befitting the navy of a superpower. Looking ahead, based on the current force buildup plans, the Russian Navy is not expected to reach the size of the late-1970s Soviet fleet. However, recent developments indicate that the fleet is upgrading its capabilities and will not be the rundown fleet it was in the 1990s following the collapse of the Soviet Union. The Russian Federation's Navy is ranked third in the 2022 Global Naval Powers Ranking and includes the vessels listed in Table 8.

As the conflict in Ukraine continues, particularly in the Black Sea, maritime experts are raising questions regarding the future of the Russian Navy. While Russia's naval forces have played an important role in the war, their performance has been, at best, mixed. The Russian Navy successfully blockaded Ukrainian ports and launched missiles against coastal targets throughout Ukraine. However, in the process, it lost its flagship in the Black Sea as well as one of its most important amphibious vessels, failed to secure control of Snake Island, and failed to execute crucial amphibious operations on the Ukrainian coast.

Table 8: Types and Numbers of Russian Navy Vessels

	Type of vessel	Number of vessels	Comments
1	Aircraft carrier	1	Unclear competence
2	Helicopter carrier	0	
3	Destroyers and cruisers	15	
4	Frigates	11	
5	Corvettes	86	
6	Submarines (SSK, SSN, SSBN)*	70	
7	Reconnaissance ships	59	
8	Minesweepers	49	

\* SSK – diesel-electric submarines; SSN – nuclear-powered submarines; SBN – ballistic missile submarines

Source: [https://www.globalfirepower.com/country-military-strength-detail.php?country\\_id=russia](https://www.globalfirepower.com/country-military-strength-detail.php?country_id=russia)

<sup>116</sup> Elbridge Colby, [Being Ready Is the Best Way to Prevent a Fight with China](#), *Foreign Affairs*, August 10, 2022.

### *The Naval Campaign between Russia and Ukraine*

On August 17, 2022, the Russian media reported that President Putin dismissed the commander of the Black Sea Fleet, Igor Osipov, and appointed 59-year-old Vice Adm. Viktor Sokolov as his replacement following the sinking of the Russian Black Sea Fleet's flagship, the *Moskva*, by Ukraine, the withdrawal from Snake Island, and the recent attacks on bases in the Crimean Peninsula. Sokolov had been the head of the Naval Military Academy in St. Petersburg since 2020. According to the Russian news agency RIA, Sokolov was introduced to the fleet's command staff at the headquarters in Sevastopol, Crimea. Such an event is generally both public and well-publicized; however, sources who spoke with the news agency said that the event was kept discrete in this case due to the high terror alert status in the peninsula in general and in Sevastopol in particular. The Russians are clearly concerned about Ukrainian commando attacks across the peninsula and fear for the lives of senior commanders in the Russian Navy. Moreover, this change of command by President Putin demonstrates his dissatisfaction with the performance of his Black Sea Fleet, which is one of the most important components of the Russian Navy. In the past, Sokolov also headed the Russian naval force in the Syrian arena.<sup>117</sup>

### *The Russian Federation Navy's New Doctrine*

Despite the Russian Navy's disappointing performance in the Black Sea, President Putin approved the updated version of the Russian Maritime Doctrine in late July 2022 (on Russian Navy Day), updating the previous 2015 document.<sup>118</sup> This is a strategic planning document of the highest-level, which details Moscow's official approach to the maritime domain. The new edition reflects significant changes compared to the previous 2015 version.<sup>119</sup>

The 2022 doctrine follows the 2015 template, now identifying fourteen national interests, as opposed to seven in the 2015 doctrine. The national interests listed combine the main principles from the 2015 doctrine and the current national maritime policy goals. Similar to the 2015 doctrine, the 2022 doctrine addresses the implementation of what is referred to as the "National Maritime Policy". It is interesting to note that while the 2015 doctrine was released after Russia invaded the Crimean Peninsula and subsequently

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<sup>117</sup> Neta Bar, [Reported in Russia: Putin Dismisses the Black Sea Fleet Commander](#), *Israel Hayom*, August 17, 2022 (Hebrew).

<sup>118</sup> Daniel Rakov, [Putin's Waves of Ambition \(and Imagination\)](#), *News1 First Division*, September 24, 2022 (Hebrew).

<sup>119</sup> See Tzevy Mirkin's discussion on this matter, "Russia's New 'Naval Doctrine' in the Context of the War in Ukraine", presented in this volume.

annexed it, the 2022 doctrine was released against the backdrop of the ongoing conflict between Russia and Ukraine. At the time of writing this report, it appears the Russian fleet does not have the upper hand. The 2022 doctrine emphasizes a more nationalist approach, seeking to position Russia as a strong maritime nation with a permanent global presence. This theme is clearly reflected in the first strategic goal, which is "to develop the Russian Federation as a great maritime power and strengthen its position among the world's leading maritime powers". The 2022 doctrine is the third in a series since the first doctrine was published in 2001. Once the patterns are discerned, the 2022 doctrine, like the earlier versions, appears ambitious. It tends toward global confrontation with the West, prioritizes security concerns in defining national objectives, and reorients Russia's foreign policy toward the Global South following its invasion of Ukraine. The Kremlin intends to strengthen its naval combat capabilities worldwide and announced greater readiness to employ military means to further its interests in international waters, including its intention to increase its naval presence on the high seas. In order to do so, the new doctrine calls for a complete restructuring of the shipbuilding industry while enhancing the quality of its technological and production capabilities, both in the military and civilian domains. In the strategic objectives chapter, Russia asserts that it is a "great maritime power" and has interests in all seas and oceans.

Another important change is in the classification of all maritime domains in the world according to how vital they are to Russia's interests and Russia's willingness to use armed force in them. The three categories are:

1. "**Areas of existential importance**", where Russia can use all components in the defense of its interests, including armed force. Under this category are the territorial waters and Exclusive Economic Zone (EEZ) of Russia, the Russian part of the Caspian Sea, the Sea of Okhotsk (near Japan), and large parts of the Arctic Ocean.
2. "**Important areas**", where the use of force will be available as a last resort after the other options have been exhausted. These areas include the eastern Mediterranean basin, the Black Sea and the Sea of Azov, the Baltic Sea, the Turkish, Danish, and Kuril straits, and even international shipping routes off the coast of Asia and Africa.
3. "**The other regions**", referring to the rest of the international waters, where Russia's interests will be promoted by non-forceful methods.

Similar to the 2015 text, the new doctrine divides the world into six geographical "directions;" however their order of importance has now changed. The Arctic and the Pacific directions, previously mentioned in the second and third places, have been upgraded to the first two spots, at the expense of the Atlantic direction, now numbered third. One of Russia's main goals in each of these three directions is to "ensure strategic stability" (a euphemism for mutual nuclear deterrence), stated in more assertive and

urgent language compared to 2015. This might be linked to President Putin's use of "nuclear signals" toward the West when he deployed strategic submarines during one of the stages of the conflict with Ukraine.

The doctrine declares that the Arctic has turned into a region of global military and economic competition and emphasizes the need to sustain Russia's leading position in this region and "wide exploitation" of its mineral reserves. Russia intends to utilize the Northern Sea Route (NSR) as its internal waters. Thus, the resource-intensive NSR, initially promoted by the Russians as an alternative to the Suez Canal, has been redirected eastward since the war began to expedite the export of Russian commodities to Asia.

With respect to maritime law, the new doctrine establishes the supremacy of Russian law over international law. It gives a stronger emphasis than in the past to the production and export of energy resources from offshore reservoirs and the protection of underwater gas pipelines; strengthens the ability to mobilize all maritime capabilities, including civilian ones, in emergencies; calls for strengthening the Russian military and commercial fleet and developing the necessary technological and industrial capacity, including in the field of aircraft carrier construction; and calls for the acceleration of Russian diplomatic activity in the maritime context in international organizations dealing with maritime issues, as well as the presence of Russian battleships and research ships in the global maritime domain.

Maritime analysts note that Russia seems to be seeking to avoid an image of being increasingly dependent on China following the disastrous Russian invasion of Ukraine. Whereas the 2015 doctrine stated that the "development of friendly ties with China is a key component of national maritime policy in the Pacific direction", China is completely absent from the current document. Instead, there are new "key components", which include lowering the threats to Russia's national security, assuring strategic stability in the region, and developing friendly relations with the countries in Asia-Pacific countries. It is clear from the document that both the Arctic and the Pacific are perceived as areas of strategic confrontation between Russia and the United States and its allies.<sup>120</sup>

The new document's reference to the Mediterranean basin (which Russia considers a sub-region of the Atlantic region) has been updated and is more detailed than that in the 2015 doctrine. It states, among other things, that Russia seeks to strengthen its partnership with Syria; will ensure its military presence in the Mediterranean on the basis of the Russian military outpost in Tartus, Syria; will seek to establish additional techno-

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<sup>120</sup> Daniel Rakov, [Russia's New Naval Doctrine: A 'Pivot to Asia'? Russia's New Maritime Doctrine Gives Increasing Importance to the Pacific and the Arctic](#), *The Diplomat*, August 19, 2022.

logistical outposts in the region; will work vigorously to ensure military-political stability in the Middle East; and will seek to deepen its cooperation with Middle Eastern countries.

With regard to the Indian Ocean and the Persian Gulf, the doctrine notes Russia's desire to expand its cooperation with Iran, Saudi Arabia, and Iraq, including developing relationships that involve security and maritime cooperation with all the countries of the Indian Ocean region. In this context, it should be noted that the facts on the ground indicate Russia's lack of success in operating the Russian fleet in the Red Sea and the Persian Gulf. In addition, its attempts over the past three years to persuade the Sudanese government to implement the long-term lease agreement for part of Port Sudan that was signed with former dictator Omar al-Bashir, have proven unsuccessful.

In conclusion, the glaring discrepancy between the goals set by the 2022 doctrine and the reality in the maritime arena as it unfolded (and is still unfolding) in the conflict between Russia and Ukraine is all too evident. The Black Sea Fleet's performance does not match the naval doctrine document, which is essentially part of Russia's national security approach. The naval doctrine document focuses on the conflict between Russia and the United States and NATO and emphasizes the central place for the use of force in defending Russia's global interests. It also highlights Russia's inclination to turn international waters into an arena for strategic competition and confrontation between the major powers. The document's approval by President Putin and publication on Russian Navy Day may indicate how detached President Putin and his senior admirals are regarding the low performance level demonstrated by the Black Sea Fleet in the conflict between Russia and Ukraine in the Black Sea. The Russian fleet's force buildup plan also reflects gaps in technology and in the capacity of Russian shipyards to meet the targets for building the Russian fleet as a "blue water navy" capable of operating effectively across the seven seas.

### *Conclusion and Implications for Israel and Its Strategic Partners*

The 2022 naval doctrine is the first national security document that Russia has published since the beginning of the war in Ukraine, and reflects the Kremlin's strategic thinking at the present time. The document focuses on Russia's overall confrontation with the United States and NATO and emphasizes a more central place for the use of force in defending Russian global interests and seeking economic and strategic alternatives to the West in the developing world.

The doctrine's approach to the Middle East is revolutionary compared to previous Russian strategic documents, and bridges the gap that has emerged over the past decade between the actual importance of the region for Moscow and how the issue is referred to in the new naval document. Russia considers the Eastern Mediterranean, and therefore

the Middle East, as an "important area" and is willing to use force to defend its assets in a confrontation with the West.

In planning Israel's long-term policy, it is imperative to take into account Russia's aspirations to deepen its military grip and political activity in both the Mediterranean and the Red Sea. While Russia understands that Europe is expected to wean itself off Russian gas, it is in no hurry to relinquish its energy monopoly over the continent. Therefore, during this tense period, unlike in the past, promoting gas exports from the Eastern Mediterranean to Europe as an alternative to Russian gas may provoke Russia and even lead to efforts to hinder the progress of such projects.

In light of Iran's growing importance to Russia, as reflected in the doctrine, the question arises as to whether Russia will continue to separate its relations with Israel from its ties with Iran. Iran is relevant to Russia not only in the Indian Ocean region, where it is mentioned by name, but is also critical in the Caspian Sea and in relation to the Russian presence in Syria. Iran is defined as a "partner" as opposed to a "strategic partner" – a term Russia uses in regard to India only. Saudi Arabia is mentioned as a counterweight to Iran, and is vital to Russia for pushing oil prices higher.

The bleakness in which the maritime doctrine is written leads many researchers to tend to focus on how detached Putin and his admirals are from the reality of the Russian Navy's grim state of affairs. Indeed, it is very likely that Russia will find it difficult to meet its full ambitions, especially in regard to building a "blue waters navy". The Russian navy falls short of the U.S. Navy in all categories, and were it not for its nuclear weapons, it would not be perceived as a serious threat. Even if Russia greatly increases its investment in building its navy, it is unlikely to match the capabilities of the United States or of China, the latter rapidly introducing advanced military vessels at a rate unparalleled by any other country in the world.

Nevertheless, in our region, the gap between Russian aspirations and achievements may prove to be narrower due to Russia's bases in Syria, the geographic proximity, and the fact that the Russian navy is considered "green water navy" that is capable of operating in its nation's littoral zones. Israel's maritime activity, which is more closely coordinated with the United States than it has been in the past, will need to take into account operational constraints (preventing conflict) and Russia's advanced intelligence capabilities, which are likely to have an impact on Israel's freedom of operation, especially in the Eastern Mediterranean Sea. These challenges may intensify if Russian-Iranian relations grow stronger, and as a result, Russia may intentionally work to restrict Israel's range of actions, including in the context of the "Campaign between the Wars" taking place in Syria.<sup>121</sup>

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<sup>121</sup> Ibid.

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### *The Russian Navy's Force Buildup*

Since coming to power, Putin has invested significant resources in restoring Russia's military potential, which was severely damaged following the collapse of the Soviet Union. As part of this effort, he has focused on rebuilding the Russian Navy. At the same time, Russian commercial companies have expanded their activities in the field of offshore drilling, laying underwater gas pipelines, and developing the Arctic region.

Despite ambitious national plans and considerable financial investment, many problems remain that limit Russia's development as a naval power, and some have even become more acute. Both the military and civilian industries in Russia suffer from a lack of technological expertise, production infrastructure, and advanced human resources in many areas. For example, since the collapse of the Soviet Union, Russia has struggled to maintain its only aircraft carrier, which is obviously outdated. After the sinking of the *Moskva* cruiser in the war in Ukraine, Russia has only four ships that can be classified as cruisers/combat cruisers and about ten destroyers. All of these ships were either launched or under construction during the Soviet era, and Russia lacks the ability to build new large ships.

There is speculation that the Russian Navy's force buildup plan will be modified after President Putin approves the Navy Doctrine and Russian Navy Regulations on Navy Day, on July 31, 2022.<sup>122</sup> Due to the cooling of relations between Russia and the West, several European commercial companies have refused to supply diesel engines and shipborne equipment promised in contracts that were signed prior to the conflict between Russia and Ukraine.

Russian Navy Commander Nikolay Yevmenov announced in early June 2022 that during 2022, the Russian Navy would receive 46 new warships and auxiliary vessels. Yevmenov noted at the keel-laying ceremony for two diesel-electric submarines held in St. Petersburg that the global military-political situation requires Russia to maintain a strong and balanced fleet. Yevmenov reiterated President Putin's desire for the Russian Navy to maintain a ratio of at least 70% modern ships in its order of battle.<sup>123</sup> In the same month, keel-laying were held for six new vessels for the Russian Navy, including two Lada-class conventionally-powered submarines being built at the Admiralty Shipyards, two research vessels at the Zelenodolsk Shipyard, one Alexandrit-class minesweeper at the St. Petersburg shipyard, and a Razumny-class corvette at the Amur Shipyard. Given the

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<sup>122</sup> Naval News Staff, [Russian Shipbuilding Program to Be Modified Under New Naval Doctrine](#), TASS News Agency, August 9, 2022.

<sup>123</sup> [Russian Navy to Receive 46 Ships in 2022](#), *China Daily*, June 13, 2022.

significant numerical superiority of NATO's naval forces, it appears highly logical for the Baltic Fleet to equip itself with advanced missile-carrying submarines whose survivability has been proven in the conflict in the Black Sea.

In the civilian sector, Russia lacks the capability to lay underwater gas pipelines, perform deep-water drilling, or liquefy gas, and has relied on Western companies that have either stopped or are stopping their work in Russia due to the sanctions imposed on it following the outbreak of the war with Ukraine.

Nuclear-armed submarines are the mainstay of the Russian Navy's power and allow Russia to pose a significant threat to other major powers. Russia has been successful in building new submarines of this type and advancing modernization projects for them. In the coming years, it will showcase a unique array of ultra-quiet torpedo-armed submarines equipped with powerful nuclear warheads (Poseidon). In the conventional domain, the Russians have managed to produce corvettes, frigates, and diesel submarines, arming them with advanced and accurate cruise missiles: the Kalibr, which has a range of up to 2,500 km and was used extensively against Ukraine and in Syria, and soon the Zircon, a hypersonic missile with an estimated range of 1,000–1,500 km. Russia is also the global leader in the field of nuclear-powered icebreakers, which are essential for the development of the Arctic region.

However, all the Russian naval projects suffer from: a proliferation of models, which complicates maintenance; substandard quality and negligence, frequently leading to catastrophic accidents; delays in the development and production schedule; a shortage of technological personnel; and a heavy reliance on foreign components. The regime of Western sanctions imposed on Russian industries even before the current war in Ukraine is expected to present significant challenges for the development of Russia's naval power, which is the crux of its new naval doctrine.

As the Russian Navy is primarily composed of smaller ships and is a "green-water navy" rather than a "blue-water navy" designed for the open ocean, most of its activity is focused in the water basins near Russia's borders (primarily the North Sea, the Black Sea, the Baltic Sea, the Caspian Sea, the Sea of Okhotsk, and the Sea of Japan). The eastern part of the Mediterranean Sea is a unique and exceptional area in which the Russian Navy has managed to establish a permanent presence in the post-Soviet era. The naval base in Syria, at the port of Tartus, has been leased to Moscow for decades, as has the air force base in Khmeimim, which provides it protection. The military importance of the eastern Mediterranean has become more evident in recent days: Russia has concentrated the lion's share of its warships there and in the Black Sea with the aim of deterring NATO from deepening its involvement in the war in Ukraine.



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### *The Russian Navy's Activity in the Eastern Mediterranean and the Black Seas and Its Operational Doctrine*

International relations researcher Basil Germond notes that "whereas President Putin's final objectives remain unclear, control of the Northern coast of the Black Sea from the official border of the Russian Federation to the Russian-backed secessionist Republic of Transnistria is likely one of his geopolitical objectives". He adds that "Russia's interest in dominating the Black Sea has been a recurring feature of its foreign policy since Peter the Great. Tsarist Russia, and then the Soviet Union, have repeatedly sought to control the Black Sea and, beyond the Turkish Straits, in a bid to gain perennial access to "warm waters".<sup>124</sup> In this context, it is worthwhile to examine the naval campaign that took place in this region when Russia invaded Ukraine in February 2022.

Following the signing of the second Minsk Agreement between Russia and Ukraine in 2015, the Kremlin released a document on its maritime strategy. The Russian government stated that it views the maritime domain of paramount importance, as it enables the import and export of trade. Russian President Vladimir Putin stated that Russia places central importance on two maritime zones, the first, the Baltic Sea and the Black Sea, and second, the Mediterranean Sea to its south. The Mediterranean Sea, which is accessed via the Black Sea, is essentially Russia's gateway to trade routes to and from Asia, the Middle East, and Africa, through which Russia is able to export wheat and gas. The Black Sea Fleet is also responsible for operations in Syria, supplying soldiers, transferring weapons, and establishing Russian naval control in the Mediterranean arena. Since 2015, Russia has built up its Baltic and Black Sea fleets in both quality and quantity. Warships, submarines, missiles, aircraft, and other weapons in these areas have been upgraded and their numbers increased. About two weeks before the Ukraine invasion began, Russian warships were deployed in the Mediterranean and Aegean Seas, creating a naval blockade isolating the Black Sea from the U.S. Sixth Fleet ships and other NATO vessels. This move was effective and prevented the entry of NATO ships into the Black Sea through the Bosphorus, despite Turkey's announcement a week after the start of the war that it would deny access to the Black Sea for any military vessels.

Preventing access (Anti-access –A2/AD) is a classic strategy for the Russian Navy, the goal being to limit the maneuverability and effectivity of NATO's military actions at sea and in the air, using long-range air defense systems and anti-ship missiles. Russian naval vessels effectively control the sea and airspace at distances of hundreds of kilometers.

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<sup>124</sup> Basil Germond, [Ukraine War: The Limits of Traditional Naval Power and the Rise of Collective and Civilian Seapower](#), *E-International Relations*, May 10, 2022.

The second layer of the A2/AD strategy was executed by deploying three battalions of Yakont anti-ship missiles with a range of almost 400 miles.

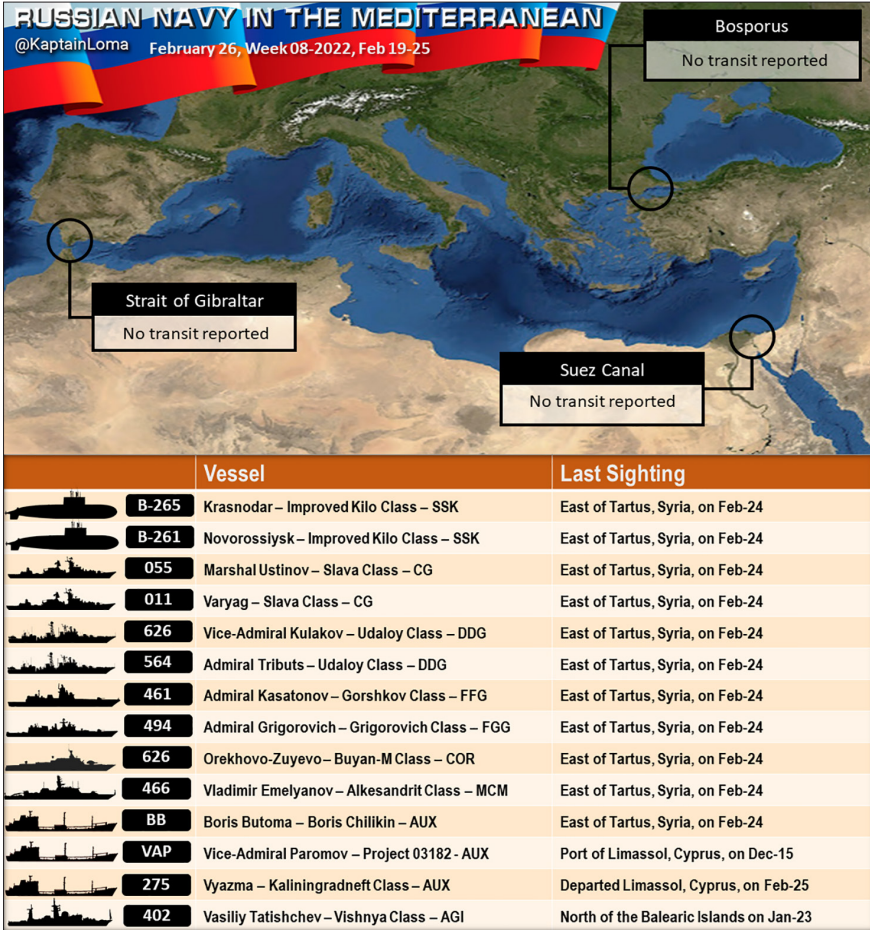


Figure 20: Deployment of the Russian Navy in the Eastern Mediterranean on the eve of the conflict between Russia and Ukraine<sup>125</sup>

On February 24, 2022, President Putin launched a "special military operation" against Ukraine, during which airports and military headquarters were attacked. Tanks and forces rolled in from Russia, Crimea, and Russian-controlled Belarus. The Russian army had three main axes of operation on land: one into the north of Ukraine (from Russia/Belarus) toward Kyiv, one into the northeast of Ukraine (from Russia) toward Kharkiv/Donbass,

<sup>125</sup> Van Lokeren, [Russian forces in the Mediterranean – Wk08/2022](#), *Russian Navy – News and Analysis*, February 20, 2022.

and one toward the southern coast of Ukraine from Crimean. The direction of the attack from the south (Crimea) led westward toward the port of Odesa and eastward toward the port of Mariupol. The military operation launched from the south, from Crimea, also involved naval aspects. The naval operation and activity in the Black Sea may not seem significant compared to the military operation on land, but there are important connections between the two events. The events in the Black Sea appeared to be less tense compared to the military operation on land and in the air because Ukraine lost most of its navy during Russia's invasion of Crimea in 2014.

In the conflict that erupted in February 2022 against Ukraine, Russia's initial strategy in the Black Sea was intended to block Ukraine's shipping routes. Had this move been successful, it would have given Russia an economic advantage and begun turning the Black Sea into what could be considered a Russian sea. However, Ukrainian forces fended off the Russian forces, and apart from one early amphibious attack, the Russians did not use their ships to try to land forces near the coastal cities.

In the early days of the Russian invasion of Ukraine, the Russian Navy controlled the northern part of the Black Sea, between Crimea and Ukraine. It quickly occupied the Ukrainian base on Snake Island, near the Romanian border in the southwestern corner of the region, and imposed a sea blockade on merchant traffic, some of which was attacked by Russian Navy ships, thereby sending a clear message. The Russian Navy subsequently attacked Ukrainian Navy ships, as seen in the destruction of the *Sloviansk* ship, and managed to seize ten more Ukrainian warships. In late February, the Ukrainian Navy sank its own flagship, the frigate *Hetman Sahaidachny*, in the port of Mykolaiv to prevent it from falling into the hands of the Russian Navy.

Another of the Russian Navy's missions was to carry out precise bombing of quality military and civilian targets deep inside Ukraine. The attacks were carried out using long-range high-precision Kalibr missiles (SS-N-30), which have a range of 1,500 miles and a warhead with the power of half a ton. It is estimated that in the early days of the war, Russian submarines and surface ships fired more than 30 Kalibr missiles at targets within Ukraine's territory.

The Russians created the anticipation that they were about to conduct a planned amphibious landing near Odesa to create a land bridge to the Russian-breakaway state of Transnistria in Moldova. Although the landing did not ultimately occur, Russian Polnocny-class landing ships sailed back and forth, creating a palpable sense of threat. Russian warships, including two Admiral Grigorovich-class frigates, patrolled near Odesa, conducting occasional bombing missions and collecting essential intelligence. Russian warships, even those with limited defenses, could operate uninterrupted within range

of the city's coastline. According to various assessments, the Ukrainians laid sea mines to prevent invasion along parts of its coast, which may have prevented Russia's access to certain areas. Russia responded by deploying minesweepers in front of its landing ships and continued to operate freely.

The situation changed dramatically less than two months after the start of the war, when on April 13, two Ukrainian Neptune missiles (based on the Russian Kh-35) hit Russia's Black Sea Fleet's flagship, the RTS *Moskva*, causing it to sink on April 14, 2022.

The impact of the sinking of the *Moskva* was greater than the loss of a single ship and severely damaged the Russian fleet's image of being invincible. Until the *Moskva* was hit, the Black Sea Fleet had operated with almost no disruption and a sense of complete maritime control, despite its warships seeming to have suffered some minor damage. Since the *Moskva's* sinking, the Russian fleet has primarily hidden behind Crimea, which has affected Russia's ability to control the Black Sea.

Beginning in May 2022 there were increasing reports that Denmark would supply anti-ship Harpoon missiles to Ukraine. In fact, on June 17, the Russian tugboat *Vasily Bekh*, which was on its way to re-supply Russian-occupied Snake Island, was hit by two Harpoon missiles despite having a Tor system on board capable of destroying incoming missiles. The ship sank as a result.



Figure 21: The Russian Navy's losses in the conflict between February 24 and May 3, 2022<sup>126</sup>

126 [Russian Navy's 5 Significant Losses in The Ukraine War So Far](#), *Naval News*, May 4, 2022.

On June 20, Harpoon missiles were used once again to neutralize a Russian-controlled gas platform in the Black Sea. Such platforms were used to track Ukrainian vessels, and, thus, in a dramatic turn of events, Russia abandoned Snake Island at the end of June. This was a victory for the Ukrainian artillery systems used to bombard the exposed island, as well as for the Harpoon missile system, which made the Russian's supply mission so dangerous.

Another distinct role of the Black Sea Fleet is to ensure freedom of navigation for Russian merchant ships carrying wheat, gas, and other goods, which provide "oxygen" for the Russian economy during the war. It should be noted that several times during the war, Russian merchant ships were detected sailing without an Automatic Identification System (AIS), allowing them to sail relatively covertly to avoid being targeted by NATO forces. In this context, the Russian fleet discovered and later removed floating sea mines that were thrown into the sea by the Ukrainians.

On Russian Navy Day, held at the end of July 2022, the Ukrainians attacked the Black Sea Fleet command in Sevastopol, Crimea, with drones, and repeated such an attack in August 2022, indicating Russia's Black Sea Fleet commanders' inability to adapt to the new situation and adjust their operational approach accordingly.<sup>127</sup>

As of the writing of this report (December 2022), the Russian Navy is sailing much less and its patrol areas tend to be far from the Ukrainian coast. Amphibious ships are increasingly being kept in port and offensive operations are limited to launching cruise missiles in proximity to their home port entrances.

Russian submarines are part of the launch system for cruise missiles fired against ground targets in Ukraine; their ability to launch cruise missiles while submerged allows them to come closer to Ukraine's shores. However, reports published by British intelligence in mid-September 2022 suggest that Russia has moved its Kilo-class submarines from the naval base in Sevastopol, Crimea to the Krasnodar region in Russia, fearing that they would be targeted by long-range Ukrainian fire.<sup>128</sup> Even the new Admiral Grigorovich-class frigates are operating beyond the range of the Harpoon missiles, despite being equipped with both soft and hard defense systems against anti-surface defense missiles.

Russia suddenly began to increase the defenses of the Kerch Bridge connecting the Kerch Peninsula in Crimea to the Taman Peninsula in Krasnodar, at the entrance to the Sea of Azov, despite it being out of range of most Ukrainian weapons. This fact suggests an increased sense of risk among the Russian command in the area. The Black Sea Fleet's

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<sup>127</sup> Christopher Miller and Paul Mcleary, [Ukraine has Hobbled Russia's Black Sea Fleet. Could it Turn the Tide of the War?](#) *Politico*, September 29, 2022.

<sup>128</sup> [Russia's Black Sea Fleet Relocating Some of its Submarines: UK](#), *Aljazeera*, September 20, 2022.

air wing, located at the Saki airbase in Crimea, was also heavily damaged in aerial attacks carried out on the night of August 9, which destroyed about half of the unit's aircraft.<sup>129</sup>

Despite this, Russia still maintains an effective blockade. It does so with missile corvettes and patrol boats operating much further south, near the coast of Romania. However, according to a large number of maritime analysts, it appears that Russia has much less control over the northern Black Sea.<sup>130</sup> Since the spring of 2022, the Black Sea Fleet's problems have been increasing as a result of poor leadership, outdated equipment, and vulnerabilities that the Ukrainians have been happy to exploit. This series of failures led to the replacement of Russian Black Sea Fleet Commander Adm. Igor Osipov by Adm. Viktor Sokolov on August 17.

### *Russia's Attack on the Nord Stream 1 and 2 Subsea Gas Pipelines*

In late September 2022, three leaks were discovered in the Nord Stream 1 and 2 subsea gas pipelines that run from Russia to Germany under the Baltic Sea. Officials identified two significant drops in pressure in the Nord Stream 2 pipeline on September 26, followed by an additional drop in pressure in the Nord Stream 1 pipeline, and determined that there were three separate leaks. Swedish seismologists stated that subsea explosions preceded the pressure drops that caused these leaks. The Danish military released images of gas bubbling up from the pipeline to the surface of the Baltic Sea in the vicinity of the Danish island of Bornholm. A single leak in a large pipeline might be a random occurrence, but simultaneous leaks in completely separate locations are unprecedented. This suspicion is compounded by the fact that these pipelines are the source of geopolitical tensions resulting from the war in Ukraine, making it highly difficult to explain this as an accident or coincidence. All of this occurred while officials were inaugurating the Baltic Pipeline, a new gas route from Norway to Poland. At present, while European and U.S. officials are calling it a deliberate act, they have not directly specified the potential suspects. Official authorities in several countries, including Germany, Sweden, and Denmark, are investigating the sources of the leaks. However, many in Europe unofficially blame Russia for the sabotage, and the European Union maintains that the Kremlin has a track record of using energy as a weapon. Moscow probably has the ability and equipment to carry out such an operation as well as the incentive to continue to apply pressure on Europe while President Putin increases his military efforts.

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<sup>129</sup> Dan Sabbagh and Samantha Lock, [Russian Warplanes Destroyed in Crimea Airbase Attack, Satellite Images Show](#), *The Guardian*, August 11, 2022.

<sup>130</sup> H. I. Sutton, [Ukraine Is Turning the Tide Against Russian Navy in Black Sea](#), *Naval News*, July 5, 2022.

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## The North Atlantic Treaty Organizations' (NATO's) Naval Forces

Changes in government in the United States have led to a strengthening of its commitment toward NATO, of which the United States was a founding member, a sentiment that was also reflected in the first meeting between U.S. Secretary of Defense General Lloyd Austin and NATO's Secretary General. Austin emphasized the United States' view of NATO as the essential forum at the core of transatlantic security, and reaffirmed its strong support for NATO Secretary General Jens Stoltenberg's 2030 initiative, which aims to keep the alliance strong militarily, strengthen it politically, and give it a more global standing. The alliance consists of 30 countries.

In the wake of the Russian invasion of Ukraine, two additional countries, Sweden and Finland, requested to be accepted into NATO. Both simultaneously sent their official letters of request to join NATO to Secretary General Jens Stoltenberg on May 18, 2022. NATO heads of state and government invited Finland and Sweden to join the alliance at the Madrid Summit on June 29. The accession protocols for both countries were signed on July 5, after the accession talks were completed. The process itself requires approval by all 30 NATO member countries. As of September 2022, 27 member countries had approved the request. The remaining two countries, Turkey and Hungary, have not yet approved the request, and it is expected that Turkey's approval will not be granted before mid-2023, mainly due to the issue being linked to support for the Kurdish PKK organization.<sup>131</sup>

Even before their final acceptance to NATO, Finland and Sweden participated in NATO's large-scale naval exercise in the Baltic Sea in mid-June 2022, despite Turkey's reservations about their membership. NATO's BALTOPS 22 exercise, which lasted for two weeks, was hosted in Sweden this year, and the Finnish Navy and air force also participated. The exercise, which was the largest in recent years, involved 45 ships and 76 aircraft from 16 countries (14 from NATO, one from Sweden and one from Finland).<sup>132</sup>

Russia's invasion of Ukraine on February 24, 2022 marked the first time since the end of the Cold War that NATO was challenged by a superpower (Russia). To a large extent, NATO and the European Union responded effectively in the early months of the war. The U.S. leadership once again demonstrated its essential role in successfully mobilizing international efforts, particularly in coordinating military support for Ukraine. NATO's

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<sup>131</sup> [NATO Membership for Sweden and Finland on Track, Officials Say](#), *The Wall Street Journal*, December 8, 2022.

<sup>132</sup> Philip Andrew Churm, [Finland and Sweden Prepare for Large NATO Naval Drill, Amid Turkish Concerns](#), *EuroNews*, June 4, 2022.

response to the war sought to balance stronger and increasing support for Ukraine with a reluctance to engage in a broad military confrontation with Russia, and has so far has proven justified. Most European countries turned to NATO's tried and tested security umbrella, which is backed by U.S. military capabilities, while the G7 and the European Union proved to be swift in tightening sanctions.

However, as the aggression continues, with Russia focusing its efforts on gaining control of eastern and southern Ukraine through attrition warfare, the Western alliance is being put to the test. Different interpretations of sanction demands affecting the transportation of banned goods to Kaliningrad illustrate this problem. The UN and the Organization for Security and Cooperation in Europe (OSCE) have not been able to offer meaningful responses, mainly due to the paralyzing effect of Russia's veto power. Furthermore, solidarity with Ukraine is still not universal among all UN member states, especially from one of the rising powers – China.

The war between Russia and Ukraine has not yet tested the reliability of NATO's collective defense guarantees as stipulated in Article 5 of the treaty. So far, the mere existence of Article 5, along with NATO's increased forward presence (now comprising more than 40,000 soldiers under direct NATO operational command), has provided sufficient deterrence. However, President Putin's unpredictable behavior, coupled with his declaration to consider using missiles and the most destructive weapons systems against targets in foreign territories (which had become common at the time in Syria), have created a new reality in the vicinity of NATO member states' territories. Moscow has shown its willingness to use indiscriminate force without legitimate military reasons and to commit war crimes, with using the justification of the restoration of lands once held by Tsarist Russia. Unsurprisingly, NATO member states bordering Russia are concerned about a potential – even if temporary – loss of parts of their territory, and after witnessing the erasure of Mariupol and Kharkiv, are alarmed by the threat of direct missile attacks on their cities and critical infrastructure.

NATO found itself in the heart of the conflict between Russia and Ukraine in the Black Sea without a clear strategy for this maritime area, despite several researchers warning about the problem as early as the summer of 2021.<sup>133</sup> The lack of a strategy for the Black Sea region and NATO's failure to perceive itself as an integral part of it are problematic. NATO has limited itself to narrow thinking regarding Article 5 commitments in the Black Sea region, which is bordered by the waters of Romania, Bulgaria, and the Turkish coast. This had already been demonstrated by NATO's lack of response to the Russian-

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<sup>133</sup> Hana Shelest, [The Maritime Dimension of the Russian-Ukrainian War](#), *Defence and Security Foresight Group*, July 2021.



initiated incident on November 25, 2018 in the Kerch Strait, during which the Russian Federal Security Service's coastal guard fired upon and seized three Ukrainian vessels in international waters off the coast of the Crimean Peninsula.

Against the backdrop of the Russian invasion of Ukraine, a NATO summit was held in Madrid in late June 2022, at which NATO heads of state and government approved its 2022 Strategic Concept.<sup>134</sup> It should be noted that there was an early understanding among NATO members that the previous document needed updating. The new concept document presents its purpose and principles:

1. NATO is determined to preserve the freedom and security of its member states. Its central goal and greatest responsibility are to ensure our collective defense against all threats, from all directions. We are a defensive alliance.
2. The transatlantic link between our nations is vital to our security. We are bound together by shared values: individual liberty, human rights, democracy, and the rule of law. We remain firmly committed to the purpose and principles of the United Nations Charter and the North Atlantic Treaty.
3. NATO is the unique transatlantic forum for consultation, coordination, and action on all matters related to our individual and collective security. We will strengthen our alliance based on indivisible security and our strong solidarity, and we are committed to defend one another, as anchored in Article 5. Our ability to deter and defend is the backbone of this commitment.
4. NATO will continue to fulfill three core missions: deterrence and defense; crisis prevention and management; and cooperative security. These are complementary in ensuring the collective defense and security of all member states.
5. We will improve our individual and collective resilience and our technological edge. These efforts are critical to fulfilling NATO's core missions. We will promote good governance and integrate climate change, human and gender security, peace, and security in all our tasks. We will continue to promote gender equality, as reflected in our values".<sup>135</sup>

It is especially worth noting NATO's strategy regarding China, which is worded in the new document in a particularly blunt and sharp manner, likely influenced by the United States:

The stated ambitions and coercive policies of the People's Republic of China (PRC) are aimed at challenging our interests, security, and values. China is using a wide range of

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<sup>134</sup> [NATO 2022 Strategic Concept, Adopted by Heads of State and Government at the NATO Summit in Madrid](#), June 29, 2022.

<sup>135</sup> *Ibid.* p. 3.

political, economic, and military tools to expand its global influence. China's actions in the field of hybrid and cyber warfare, accompanied by manipulative rhetoric and disinformation, are directed against the United States' allies with the intention of undermining NATO's existence. China seeks to dominate a number of technological and industrial sectors, critical infrastructure, strategic materials, and supply chains. It uses its economic leverage to create strategic dependencies and increase its influence. It seeks to undermine the rules-based international order, including in the space, cyber, and maritime domains. The tightening strategic alliance between the People's Republic of China and the Russian Federation and their coordinated efforts to undermine the international rules-based order, are contrary to our values and interests.<sup>136</sup>



Figure 22: NATO forces' deployment following Russia's invasion of Ukraine<sup>137</sup>

NATO's nuclear weapons arsenal relies on the strategic nuclear capabilities of the alliance, especially those of the United States, and the document emphasizes the supreme assurance this weapon provides to the security of the alliance. The document also emphasizes that the independent nuclear strategies of the United Kingdom and France have their own deterrent role and greatly contribute to the alliance's overall security.<sup>138</sup>

The document emphasizes the strategic importance of the Western Balkans and the Black Sea regions for NATO's maritime domain.<sup>139</sup> It should be noted that the document

<sup>136</sup> NATO 2022 Strategic Concept, p. 5.

<sup>137</sup> [Deterrence and Defence](#). NATO, Last updated September 12, 2022

<sup>138</sup> NATO 2022 Strategic Concept, p. 8.

<sup>139</sup> *Ibid.* p. 11.

is general in nature and addresses each of the challenges at the thematic level rather than the geographic level, and therefore no emphasis is made in regard to the maritime domain in which NATO operates.

In the context of any NATO naval contribution to the conflict between Russia and Ukraine, NATO was not in a position to activate its naval power in any significant way. NATO officials justify this based on the specific geopolitics of the Black Sea, as well as the necessity to avoid escalation with a nuclear-armed state. While the United States deployed a combat group led by an aircraft carrier in the Aegean Sea, with F-18 aircraft covering part of the combat zones in southern Ukraine, these were not activated at any stage of the conflict. The U.S. Navy, along with the rest of NATO's fleets operating outside the Black Sea, including those of the United Kingdom and France, decided not to respond for fear of escalating the conflict. The situation was further complicated by Turkey's decision to close the Black Sea to all warships, not just those covered by the Montreux Convention. It should be noted that the Turkish Straits regime (Bosporus and Dardanelles), established by the Montreux Convention in 1936, gives Turkey the authority to close the straits to warships involved in combat (based on its assessment of the situation), which it did less than a week after the start of the war.<sup>140</sup> As the war continues, it seems that Turkey's actions are hurting Russia more, as they prevent it from reinforcing its naval forces in the Black Sea with naval forces from other arenas, especially in light of the losses the Russian Navy has suffered in the conflict so far (see the review of the Russian Navy).

There are those who criticize the lack of direct involvement by NATO naval forces in the crisis. The last warship from NATO fleets that patrolled the Black Sea was a French destroyer, which completed its mission in mid-January 2022, and since then, no NATO military vessels have entered the Black Sea. In contrast, 16 vessels from the Russian navy, including missile ships and vessels capable of landing tanks, have sailed to the Black Sea. The main reason for NATO's inaction in this realm is disagreements among NATO members on whether the Russian Navy should be challenged in the area, when there is no coherent and significant NATO strategy for the Black Sea. This also includes the reluctance of some NATO members, primarily Turkey, to agree to naval patrols so as not to provoke Russia. Other factors are budget constraints and the existence of other priorities among some leading NATO countries.<sup>141</sup>

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<sup>140</sup> For an extensive discussion on this topic, see Glen Segell, "The Regime of the Straits (Montreux Convention 1936) and the Russia and Ukraine War," in this volume.

<sup>141</sup> John Irish, Robin Emmott and Jonathan Saul, [U.S. Navy Left the Black Sea Unprotected Allowing Russia to Invade Ukraine](#), *Reuters*, February 24, 2022.

To compensate for NATO's lack of involvement in the war against Russia and to avoid direct military conflict between NATO countries and Russia, the organization has relied on the private maritime sector, which is undoubtedly a component of contemporary sea power, in order to harm Russia while avoiding military escalation. As a result, almost all the major shipping companies, including MSC, Maersk, and ONE, have suspended their activities to Russian ports, which has affected the Russian economy. This demonstrates the holistic nature of sea power, which is wider than that exercised by state actors through military force, and includes the corporate sector, whose interests and concerns in this case drive it to act against Russia with other tools. In addition, the United States, United Kingdom, and other European countries have banned Russian-flagged or Russian-owned ships or the operation of Russian companies from entering their ports. All of these steps are part of a comprehensive global diplomatic effort led by public and private stakeholders to put pressure on President Putin's regime. This maritime element is not negligible, and its impact on the Russian economy is already being felt by Russian maritime stakeholders.

The maritime dimension of the conflict is likely to be linked to the fate of Odesa. If the port city falls and Russia manages to control the entire Ukrainian coastline (which at the time of writing this report seems relatively unlikely), Ukraine's ability to resist will be harmed and additional pressure will be placed on global food security by prolonging Ukraine's inability to freely access global maritime shipping routes. In practice, Russia is prioritizing ground operations and avoiding the use of naval forces to achieve this goal. In the longer term, the effects of the civilian components of sea power could ultimately contribute to Russia's failure even without the use of naval force. These effects are already being felt and will only increase over time, as maritime countries and stakeholders continue to leverage their sea power to exert as much pressure as possible on Russia.

Naval forces from 11 NATO member states participated in the annual Sea Breeze 2022 military exercises in the Black Sea, which began in July 2022. These were the first major exercises in the Black Sea since Russia's full-scale invasion of Ukraine in February 2022. All necessary precautions were taken in the exercise areas to ensure the safety of the participants due to the risk of free-floating mines in this area. The U.S. Navy decided not to send warships to the 2022 exercise, but its crews participated in the command-and-control work that accompanied the exercise. The U.S. Navy's Task Force 68 participated in several activities, including anti-mining warfare, remotely operated vessel searching techniques, and underwater ordnance reconnaissance. Task Force 67 participated in the exercise using P-8A-class Poseidon maritime patrol aircraft.

In 2022, NATO continued its Operation Sea Guardian throughout the Mediterranean Sea. This flexible operation, which NATO began in 2016, is controlled by NATO's Allied Maritime Command – MARCOM, in Northwood, United Kingdom, and is designed to cover

all of NATO's maritime security operation (MSO) missions. The operations themselves take place only in the Mediterranean Sea and include three maritime security missions: maritime security capacity building, maritime situational awareness, and counter-terrorism at sea. This operation remains one of the most important tools for projecting NATO's stability throughout the Mediterranean and provides an opportunity to increase cooperation and mutual capabilities with additional non-NATO countries located along the shores of the Mediterranean Sea. It should be noted that France withdrew from these operations in July 2020 following an incident in the eastern Mediterranean Sea, in which a Turkish frigate demonstrated aggression toward a French destroyer, which had stopped a Turkish merchant ship suspected of violating the UN embargo on Libya.<sup>142</sup>

In January 2022, the first operation of the year was held in the eastern Mediterranean Sea, in which maritime patrol aircraft from Greece, Poland, and Turkey, as well as submarines from Greece and Turkey participated. The flagship of the operation was the Turkish frigate TCG *Barbaros*. At the time, NATO's Standing Maritime Group 2, which included the flagship vessels ITS *Margottini*, ESPS *Blas de Lezo*, and TCG *Goksu*, was deployed in the eastern Mediterranean Sea and was expected to contribute to NATO's efforts to improve awareness of its maritime status in the region. In late June 2022, a two-week operation was concluded in the western Mediterranean Sea under the command of the Spanish frigate ESPS *Reina Sofia*, which was joined by a submarine from Italy and maritime patrol aircraft and early warning aircraft from Canada, Portugal, and Spain. During the two weeks, the force conducted focused security patrols at sea to deter and detect possible illegal maritime activities.<sup>143</sup>

The addition of Sweden and Finland to NATO will enhance NATO's capabilities in two critical ways. One is geostrategic: the Baltic Sea will no longer be a gray security zone, and Finland's 1,340-kilometer border with Russia will no longer be a source of concern for a land invasion that could threaten NATO from the north. The result would be a weakening of Russia's security position in the Nordic and Arctic regions. As for the maritime domain, although the Swedish Navy is the smallest of Sweden's three military arms, it is equipped with five submarines (three Gotland-class and two Södermanland-class), seven corvettes (five Visby-class and two Gävle-class), eight minesweepers (four Koster-class and four Styrös-class), 13 larger patrol ships (two Stockholm-class and 11 Tapper-class), and nine auxiliary ships. The Swedish Navy is considered an advanced one, based on its domestically-built diesel-electric submarines, which are among the most cutting-edge in

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<sup>142</sup> Eduard Sole, [The EU and the Eastern Mediterranean: How to Deal with Turkey](#), CIDOB Barcelona Center for International Affairs, May 2021.

<sup>143</sup> [NATO Operation Sea Guardian Security Patrols Concluded in Western Mediterranean](#), NATO, July 6, 2022.

the world as well as its possession of the first non-nuclear-powered submarine to include an air-independent propulsion system, extending its underwater endurance from a few days to weeks.

*NATO's Security Budget Following Russia's Invasion of Ukraine*

The Russian invasion of Ukraine has led NATO members to recognize that they need to increase their defense spending in light of what NATO Secretary General Jens Stoltenberg called "the most serious security crisis of our generation".<sup>144</sup> Despite the decision made at the 2014 Wales Summit following Russia's invasion of Crimea to increase the defense spending of all NATO members to 2% of each country's GDP by 2024, only nine out of the 30 NATO countries are expected to fulfill this commitment (see Figure 23).<sup>145</sup> According to NATO sources, since the invasion in February 2022, most member countries have committed to investing more in defense, and at a much faster pace. As we are dealing with maritime aspects – the effects of this decision on NATO's naval force buildup will be examined.

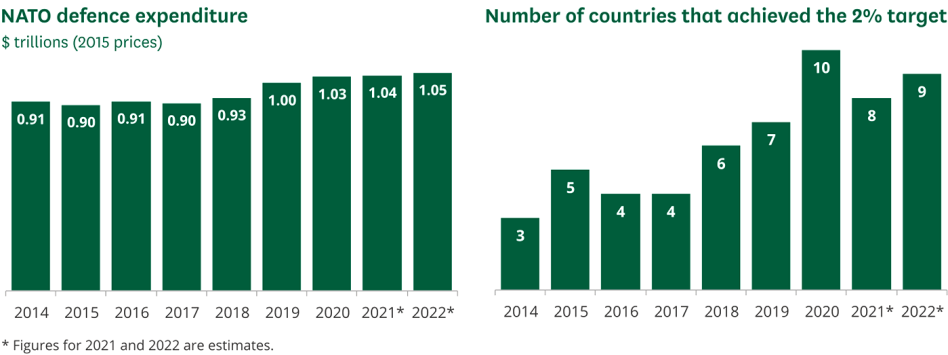


Figure 23: NATO defense expenditures in 2014–2022 and the number of countries that have met the 2% goal<sup>146</sup>

Following the invasion, Germany set plans to increase defense spending to more than 2% of its GDP through a special fund of €100 billion, earmarked for the modernization of military equipment and spread over several years. Germany has not met the 2% target, and until recent events, it was not expected to manage to do so by the final deadline of

<sup>144</sup> [Doorstep statement by NATO Secretary General Jens Stoltenberg at the Start of the Extraordinary Summit of NATO Heads of State and Government](#), NATO website, March 27, 2022.

<sup>145</sup> Esme Kirk-Wade and Sanjana Balakrishnan, [Defence Spending Pledges by NATO Members Since Russia Invaded Ukraine](#), U.K. Parliament House of Commons Library, August 11, 2022.

<sup>146</sup> Ibid.

2024. Germany is currently the third-largest contributor to NATO, after the United States and the United Kingdom. If Germany does indeed spend this amount, it will surpass the United Kingdom's current defense spending in absolute terms and become NATO's second-largest security contributor.<sup>147</sup> Poland was one of the few countries already spending 2% of its GDP on defense prior to Russia's invasion of Ukraine. Shortly after the invasion, it committed to increasing its spending to 3% of its GDP by 2023, and passed legislation to ensure that this commitment would indeed be fulfilled. It is still unclear what portion of the additional budget will be allocated to maritime reinforcement, whether in vessels or combat systems.

Table 9: NATO's order of battle as of 2022

Vessel type	Number of vessels	Comments
Aircraft carriers	17	Including from the United States
Submarines	144	
Destroyers	112	
Frigates	135	
Corvettes	56	
Minesweepers	153	
Reconnaissance ships	298	

Source: Clark, [Number of military ships in NATO in 2022, by type](#), Statista, March 2, 2022

### *Rivalries and Cooperation within NATO*

The pact between Australia, the United Kingdom, and the United States (AUKUS) led to the cancellation of the French submarine project intended for Australia and a cooling of relations between France and the three pact partners. The French security establishment was left shocked after suddenly losing a \$66 billion deal for the French company Naval Group to build diesel-electric submarines for Australia, when the Australians decided to change course and build a new fleet of nuclear-powered submarines with the help of the United States and the United Kingdom.<sup>148</sup> The relationship between France and Turkey deteriorated, as mentioned, after the incident in 2020 in the eastern Mediterranean Sea in which a Turkish frigate acted aggressively towards a French ship that had stopped a Turkish merchant ship suspected of violating the UN embargo on Libya during the Sea Guardian operation. On July 1, 2020, France announced that it was suspending its involvement in the Operation Sea Guardian due to the tensions with Turkey. In fact, France's support for Greece was already revealed in 2020 when Greece was coping

<sup>147</sup> Ibid.

<sup>148</sup> For a discussion on this matter, see Itzhak Bilia, "Strategic Weapons Supplies in the Context of Special Relations: AUKUS as a Case Study", in this volume.

with Turkish naval operations in the eastern Mediterranean Sea, which both France and Greece viewed as highly hostile.<sup>149</sup>

These events have prepared the ground for a strengthening of France's security relationship with Greece. On September 28, 2021, the Greek Ministry of Defense committed to purchasing three FDI-class (frégate de défense et d'intervention) frigates from France's Naval Group, along with a weapons system provided by the French company MBDA Missile Systems, in a deal valued at approximately \$3.5 billion. On the same day, a memorandum of understanding on strategic defense partnership was signed in Paris between French President Emmanuel Macron and Greek Prime Minister Kyriakos Mitsotakis. According to security analysts, this agreement confirms that bilateral relations are shifting towards a new balance. Greece, which has now emerged from its financial and political crisis, has become an appealing economic and diplomatic partner for France. The French investment in Greece strengthens the "Mediterranean Option" that was developed during Macron's tenure, and provides natural support for Athens, which is seeking security and looking to break free from its obsessive rivalry with Turkey, whose diplomacy is currently opening up to new opportunities. The French-Greek partnership, originally presented as a contribution to European strategic autonomy, fits in perfectly with the French presidency's plan for the European Union Council. However, the French-Greek option raises questions for NATO, as the mutual assistance clause of the agreement implicitly targets Turkey. Naturally, Turkey condemned the agreement, and certain elements within the European Union, such as Germany, also expressed skepticism regarding its stabilizing effect.<sup>150</sup>

In March 2022, Greece and France signed the agreements and the Greek Navy will receive the first two ships in 2025 and 2026. To meet these goals, the French agreed to provide the Greeks with frigates from the production line originally intended for the French Navy. The frigates are intended for both surface and air missions and are equipped with modern sensors, such as the Thales Sea Fire radar. They have an innovative mast that integrates all the sensors, with a fixed coverage capability of 360 degrees. The frigates are also equipped with the Naval Group's MU90 torpedo and anti-aircraft and anti-surface missiles made by MBDA. The ships have a landing surface that allows a helicopter weighing 10 tons and an aerial drone to take off and land and will also be equipped with CANTO anti-torpedo defenses from Naval Group. The system consists of small, launchable decoys that emit

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<sup>149</sup> [The French-Greek Partnership: Beyond the Eastern Mediterranean](#), *French Institute of international relations*, February 23, 2022.

<sup>150</sup> Sebastian Sprenger, [Greece Signs Pact to Buy Three Frigates from France](#), *Defense News*, September 29, 2021.



a continuous stream of signals to confuse attacking torpedoes at a long range from the ship, until they are exhausted.

Despite NATO's vital importance, there are rivalries and conflicting interests within it that are difficult to reconcile, and its true test will be if Russia attacks one of its members and triggers Article 5, which requires the entire organization to come to the aid of the attacked party.

## The British Royal Navy

The Royal Navy is ranked ninth in the Global Naval Powers Ranking for 2022. As is well-known, the United Kingdom left the European Union on January 31, 2020 (Brexit), but remained a NATO member. It was among the most determined NATO countries in opposing Russia's invasion of Ukraine, providing a range of military, economic, humanitarian, and defensive assistance to Ukraine, as well as imposing additional sanctions on Russia and Belarus.

### *The New British Maritime Strategy*

On August 15, 2022, the United Kingdom published a new maritime strategy for the next five years, focusing on improving freedom of navigation in the Indo-Pacific region, officially recognizing that environmental challenges in the maritime domain are a cause for concern and have a negative impact on maritime security in its broader sense. The new strategy redefines maritime security as the preservation of rules, regulations, and norms to enable a free, fair, and open maritime domain. With this new approach, the government rightly acknowledges "any illegal, unreported and unregulated (IUU) fishing and environmental damage to our seas as a maritime security concern".<sup>151</sup> The strategy document is authored by the heads of five U.K. government ministries, including the Ministry of Defense, who note that Russia's war in Ukraine and other events are bringing the world to a state of heightened global tension. They also write that leaving the European Union has given the United Kingdom the ability to develop policies and strategies that best represent the priorities and values that are most important to the British people.

The new maritime security strategy outlines how the United Kingdom will enhance its capabilities in technology, innovation, and cyber security, officially recognize environmental damage as a concern for maritime security, address modern issues, such as illegal fishing and polluting practices, and improve the quantity and quality of available seabed mapping data to expand its knowledge and help identify emerging threats.

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<sup>151</sup> [New Maritime Security Strategy to Target Latest Physical and Cyber Threats](#), U.K. Government, August 15, 2022.

The strategy document sets the following goals for joint government, academia, and industry efforts:

1. Protecting the homeland (delivering the world's most effective maritime security framework for the United Kingdom's borders, ports and infrastructure).
2. Responding to threats: taking a whole system approach to bring world-leading capabilities and expertise to bear to respond to new, emerging threats.
3. Ensuring prosperity: ensuring the security of international shipping, the unimpeded transmission of goods, information and energy to support continued global development and the United Kingdom's economic prosperity.
4. Championing values: championing global maritime security underpinned by freedom of navigation and the international order.
5. Supporting a secure, resilient ocean: tackling security threats and breaches of regulations that have an impact on a clean, healthy, safe, productive and biologically-diverse maritime environment.

In March 2022, the United Kingdom published a national shipbuilding strategy, according to which the country plans to invest £4 billion (approximately \$5.3 billion) in the shipbuilding industry. This investment will also support shipyards and suppliers across the United Kingdom and create a production line of over 150 new military and civilian vessels over the next 30 years.<sup>152</sup>

Insights into the threats perceived by the United Kingdom can be found in the remarks made by its First Sea Lord, Adm. Sir Ben Key, in July 2022, regarding the lessons learned from the conflict in Ukraine. Adm. Key said that the conflict in Ukraine had underscored both the importance of the sea and global trade on the oceans and the value of the best equipment, operated by highly-motivated, professional armed forces. However, he warned that: "Putin has, through his actions, created a new Iron Curtain from the Baltic to the Black Sea... focusing solely on the Russian bear risks missing the tiger in the room". According to Adm. Key: "The world has woken up to the risks that Russia's invasion poses, and the need for nations to meet their NATO spending targets as a matter of urgency". However, he emphasized that: "Today we see Russia as the clear and present danger, but China will pose the greater long-term challenge. Having overestimated some of Moscow's military capabilities, we can't now risk underestimating those of Beijing". Adm. Key believes that China "is potentially on the way to building the largest navy in the world, backed up by a massive coastguard and maritime militia, making the Royal Navy's allies and partners in the Indo-Pacific – including the United States, Australia, France and Japan

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<sup>152</sup> Xavier Vavasor, [U.K. Issues Refreshed National Shipbuilding Strategy](#), *Naval News*, March 10, 2022.

– crucial in ensuring the continuance of the rules based order that has promoted peace and prosperity since the end of World War II."<sup>153</sup> These remarks underscore the United Kingdom's commitment to its traditional ally, the United States, against the threat the latter identifies as its primary concern, despite the ongoing conflict between Russia and Ukraine and President Putin's threats against NATO countries (and particularly the United Kingdom), which include the use of nuclear weapons in extreme situations.

### *The Royal Navy's Size and Force Buildup Plan*

As of August 2022, there were 74 vessels in active service in the Royal Navy. The number of Royal Navy warships has shrunk over the past three decades, primarily due to the end of the Cold War. According to the 2010 Strategic Defense Review, the total number of destroyers and frigates, which was 23 at the time, would continue to decrease to only 19 if the force buildup plan was not changed. As part of the increase in defense spending announced in November 2021, then-Prime Minister Boris Johnson said he wanted the United Kingdom to be "the foremost naval power in Europe".<sup>154</sup> That ambition implicitly included the intention to reverse the fleet's decline and increase it to at least 24 ships by the first half of the 2030s. These would include the new Type-26 and Type-31 frigates, and the announcement of a preliminary design, the Type-32. The Royal Navy is not the only navy facing challenges in trying to rebuild a larger number of naval vessels, provide new capabilities, and introduce new technologies while the industrial capacity to do so is diminishing. In light of this, there is a concern that before the number of vessels increases, the Royal Navy will be forced to retire aging vessels and reduce its overall fleet size.

The United Kingdom is nearing the end of an ambitious force buildup plan, the highlight of which is the operationalization of its two new aircraft carriers, the HMS *Queen Elizabeth* and HMS *Prince of Wales*. The HMS *Prince of Wales*, which was supposed to sail to the United States and participate in a joint exercise with the U.S. Navy to operate F-35B jets and unmanned systems, returned to Portsmouth in late August 2022 for repairs after suffering significant damage to its shaft and propeller. In addition to the propeller damage, superficial faults in the rudder were also found. Royal Navy sources described the malfunction as related to the coupling which joins the final two sections of the shaft. The aircraft carrier HMS *Queen Elizabeth* replaced the HMS *Prince of Wales* in the joint exercise in the United States.<sup>155</sup>

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<sup>153</sup> [First Sea Lord Outlines Lessons of war in Ukraine for U.K. and Naval Allies](#), *Royal Navy*, July 19, 2022.

<sup>154</sup> [U.K. Royal Navy Fleet Numbers: More or Less?](#) *IISS*, August 5, 2022.

<sup>155</sup> [HMS Prince of Wales Returns to Portsmouth after Suffering 'Significant' Damage to Propeller](#), *ITV News*, September 4, 2022.

### *British Activity in the Indo-Pacific and the Relationship with France*

Almost a year after the surprise announcement of the agreement between Australia, the United Kingdom, and the United States (AUKUS) in 2021, the full diplomatic implications are still unclear. The pact facilitates cooperation on security issues in the Indo-Pacific region in particular and concerns the sharing of critical military capabilities and technologies, such as cyber, artificial intelligence, quantum technologies, and undersea areas. It reflects the increased attention the United States, the United Kingdom, and Australia are dedicating to the Indo-Pacific and their commitment to limiting China's exercise of power in this region. The pact provoked outrage in France and was a prominent source of dispute between countries that see themselves as defenders of the liberal international order. At the core of the agreement is Australia's intent to acquire nuclear-powered submarines from either the United States or the United Kingdom, abandoning its 2016 agreement to purchase diesel-powered submarines built in France, as Australia believes that the French-made submarines are no longer suitable for its purposes.

The appointment of Catherine Colonna, a professional diplomat and former French ambassador to London, as France's Foreign Minister, is a sign that after a year of mutual anger, France is ready to move forward pragmatically and start anew. After all, the Indo-Pacific remains a high priority of the French foreign policy and France needs find a way to work with AUKUS members. Thus, in May 2022, French and Australian officials committed to restoring bilateral relations, as Australia indicated it would compensate the French Naval Group for the loss of revenue from the submarine contract, and France plans to deploy an aircraft carrier to the region by 2025, which is expected to carry out operations in cooperation with the U.S. Navy.

With the easing of tensions between France, Australia, the United Kingdom, and the United States, some in the West recommend considering ways in which France could join the non-nuclear aspects of the AUKUS framework. Given France's significant presence in the Indo-Pacific region in recent years, which is more than that of any other European power, the United States could leverage both France's experience and capabilities to counter China's growing influence in the region, while exploring ways to harness the technological and economic capabilities of European and Asian countries. These sources highlight the benefits of including France in AUKUS, as it is the driving force behind the European Union's growing engagement with Asia, with the most prominent advantage being a trans-European-Pacific effort to counter China's regional influence, with implications for Americans, Europeans, and other Asian partners.<sup>156</sup>

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<sup>156</sup> Gesine Weber and Edgar Tam, [Moving on after AUKUS: Working with France in the Indo-Pacific, War on the Rock](#), August 8, 2022.

The United Kingdom has no aspirations to be a power on the level of the United States in the Indo-Pacific region. However, it is rapidly building on its maritime presence in Singapore and its garrison in Brunei and is expected to become a power on the level of Australia, with considerable capabilities and numerous interests in the region. For example, in May 2022, the Royal Navy ship HMS *Tamar* successfully completed its first deployment in the Indo-Pacific as part of the United Kingdom's permanent maritime presence in the region. The ship left its home port in the United Kingdom in September 2021 and is planned to operate for five years (alongside its sister ship, HMS *Spey*) with allies and partners throughout the region, including visits to countries such as Australia, Japan, Fiji, and Singapore.<sup>157</sup> Such a result is vital to the interests of the United States, and therefore it supports and encourages the United Kingdom in these efforts.

## The Indian Navy

### *India's Position in the Crisis between Russia and NATO*

Since late February 2022, when Russian forces invaded Ukraine, India has maintained a neutral position regarding the war. It abstained from UN votes condemning Russia's invasion and refused to publicly blame Russia for the crisis, despite the fact that it traditionally values sovereignty and territorial integrity. India has maintained its strong historical ties with Russia, increased its imports of Russian oil, and welcomed Foreign Minister Sergey Lavrov on a diplomatic visit in April 2022.<sup>158</sup>

### *The Indian Fleet*

India emphasizes its navy's mission of protecting its natural wealth, keeping its trade routes open for economic development, and maintaining its international status. India's coastline is 7,516.6 km long. Therefore, India needs to build and operate a large and strong navy that is always at a high level of readiness so that during a security crisis, or natural disasters, such as floods, droughts, cyclones, earthquakes, and other hazards, it can efficiently and safely fulfill its missions. India's soft power has always preceded its hard power. However, in the past decade, it has tried to strike a balance by expanding its naval power without threatening its neighbors while still defending its interests. Many factors have influenced the paradigm shift in India's maritime security strategy. These include: bordering countries with nuclear capabilities, such as China and Pakistan; the

<sup>157</sup> Press Release, [HMS Tamar Visits Darwin: Royal Navy Ships Complete First Deployment of Indo-Pacific](#), UK.GOV, June 1, 2022.

<sup>158</sup> Rajan Menon and Eugene Rumer, [Russia and India: A New Chapter](#), *The Carnegie Endowment for International Peace*, September 20, 2022.

United States, which since the 2000s has considered India to be an important power that should be engaged in its battle against China in the Indo-Pacific region; and other non-state actors, that also play a vital role. India is concerned about China, which is clearly moving towards becoming a global superpower by directing its resources towards the maritime domain in general, and which attaches special geopolitical importance to the Indian Ocean in its Belt and Road Initiative.

### *India's Maritime Force Buildup*

The Indian Navy is one of the largest navies in the world, ranking seventh in the Global Naval Powers Ranking for 2022 while the British and French navies are ranked eighth and ninth, respectively. Its primary combat fleet includes ten destroyers, 13 frigates, 17 submarines, and one aircraft carrier. In 2022, India was expected to launch its second SSHN Arihant-class submarine into its strategic arsenal, as well as a second domestically designed and built aircraft carrier. However, in India, there can be a gap between plans and execution, and delays may occur in this project.

To cope with the imbalance opposite the Chinese Navy (which serves as a reference), the Indian Navy plans to acquire a number of new and advanced vessels, particularly submarines (both nuclear-powered and conventionally powered). Two additional Arihant-class submarines are in various stages of construction and are scheduled to join the Indian fleet by 2025. Three larger S-5-class submarines are scheduled to be built in the latter half of the decade. The Indian Navy is preparing to build six nuclear attack submarines and replace the leased SSN INS *Chakra* by 2025 with a newer Russian SSN Akula-class submarine.

By the end of the decade, the Indian Navy plans to complete the construction of seven low radar cross-section (stealth technology) Nilgiri-class frigates and four Admiral Grigorovich-class frigates, with two being built in Russian shipyards and two by India itself.

As noted in the *Maritime Strategic Evaluation for Israel, 2020/21*, the Indian Navy is building a new naval base as part of the Varsha Project (INS Varsha), which is intended to be the homeport for the navy's new fleet of nuclear submarines and ships. The base was planned to be located within a radius of about 200 km from Visakhapatnam, where the headquarters of the Indian Navy's Eastern Fleet Command is situated, at a site called Rambilli, 50 km from Visakhapatnam.

### *The Indian Navy's Budget*

The Indian Navy's 2022–2023 defense budget reflects a 17.57% increase for research and development (R&D) compared to the 2021–2022 budget. Twenty-five percent of the R&D

budget is allocated to industry, startups, and academia, in an aim to promote innovation, development, and manufacturing in India.

India's defense budget for 2022–2023 requires thorough examination in the context of the country's changing geopolitical environment and the modernization of its armed forces. The current Indian defense budget features a renewed focus and reorientation of security policy aimed at moving away from the land-centric focus that characterized previous years. In a speech delivered by Indian Prime Minister Narendra Modi at the Swavlamban Naval Seminar held on July 25, 2022, he described India's vision for development and security, which is centered around the pursuit of AatmaNirbhar, or self-reliance, in developing military capabilities. The prime minister noted that India's defense must meet a vast array of security challenges, which are no longer limited to land, sea, and air, and argued that the armed forces must work together to strengthen the country's military capabilities. Highlighting the importance of self-reliance in the defense sector, the prime minister said dependence on imports for small requirements of the armed forces could pose serious strategic challenges. Cautioning the armed forces about new threats, Prime Minister Modi said that the contours of national security have expanded and the challenges are moving towards space, cyberspace, social space and the economic sphere.<sup>159</sup>

Table 10: The Indian Armed Forces Budget for 2021–2022 compared to the 2022–2023 budget

F i s c a l Year	Capital outlay for Indian Navy (figure in crores)	Overall capital outlay for all three services (figure in crores)	Share of IN in overall capital expenditure (in percentage)
2021–22	33,253.55	1,35,060.72	24.62
2022–23	47,590.99	1,52,369.61	31.23

Source: [Notes on Demands for Grants, 2022–2023](#), *India Budget, No. 21/Capital Outlay on Defence Services*

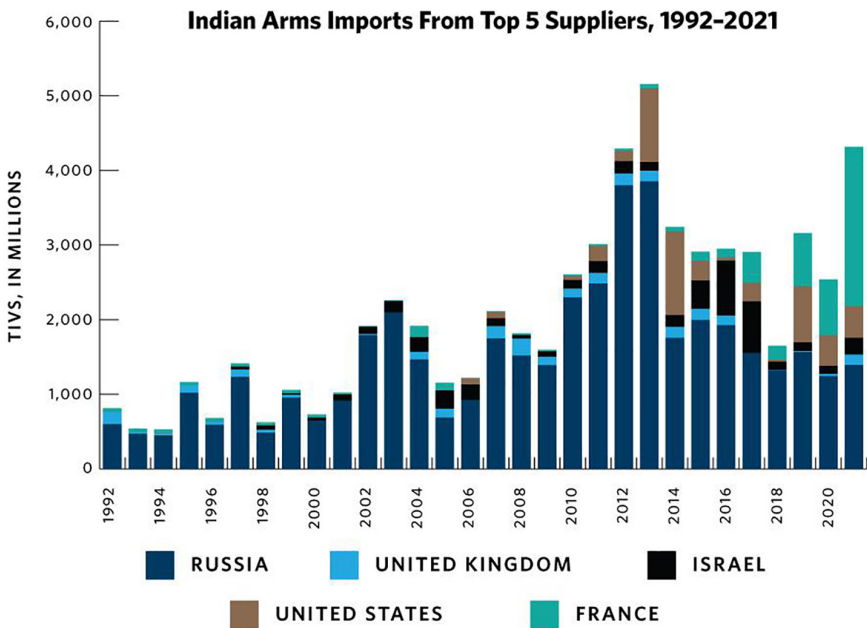
The most significant portion of the defense budget for 2022–2023 (65.19% of the total allocation, including revenues and capital) is allocated to the Indian Navy, more than the 58.73% allocated in 2021–2022.<sup>160</sup>

<sup>159</sup> P. K. Vasudeva, [Defence 'Atmanirbharta' Key to Robust Indian Economy](#), *The Pioneer*, August 6, 2022.

<sup>160</sup> Rahul Rawat, [India's Defence Budget: The Navy and its Atmanirbhar Bharat Mission](#), *Observer Research Foundation – ORF*, July 16, 2022.

*The Goals of the Naval Force Buildup Plan*

Self-reliance on equipment, platforms, and systems has become a strategic necessity. The same concern has been reflected in "Indianization" and the "Make in India" trend. In this spirit of a renewed national focus on self-reliance, a ten-year Integrated Capability Development Plan (ICDP) has been adopted for the Indian Navy, replacing the earlier 15-year Maritime Capability Perspective Plan (MPCC). The major change in planning will cater to the development of maritime theater command and will provide more flexibility in modernization, given rapid changes in technology. In accordance with this new approach, the Indian Ministry of Defense published three lists of import bans, including items intended for local production. This publication effectively set the roadmap for the Indian defense system to operate in accordance with the AatmaNirbhar mission in the local defense sector. This will also apply to the upgrading of major platforms that were previously tied to foreign parties and projects under development.



SOURCE: SIPRI Arms Transfer Database, accessed July 27, 2022.

NOTE: TIVs, or trend indicator values, are based on the known unit production costs of a core set of weapons. SIPRI intends to capture all military resources rather than a transfer's financial value.

Figure 24: Indian Armed Imports by Country<sup>161</sup>

<sup>161</sup> Rajan Menon and Eugene Rumer, [Russia and India: A New Chapter](#), *The Carnegie Endowment for International Peace*, September 20, 2022, Figure 4.



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### *Upgrading Platforms*

In 2022, the Indian Navy introduced into operational service a fully indigenous twin-engine, multi-role, new-generation helicopter designed and developed by Hindustan Aeronautics Limited (HAL). Similarly, the DRDO developed an indigenous Air Independent Propulsion (AIP) system, which is a critical technology that once upgraded and integrated into submarines, will increase their subsurface endurance, resulting in improved operational capabilities. The first upgrade will be carried out for Kalvari-class submarines by 2025. Another significant development are the Scorpene-class conventional submarines (supplied by France) worth \$5.78 billion. The development of the submarines in this series has led to an increase in local production reaching 40% of the cost of the project. In addition, for the first time, India is developing a marine diesel engine for these submarines. These submarines will feature advanced stealth characteristics, equipped with long-range guided torpedoes, as well as an anti-ship missile sensor suite.<sup>162</sup>

### *Future Projects*

The domestically-built Vikrant aircraft carrier will consume a significant portion of the budget allocated for procurement within India. In the field of anti-submarine warfare (ASW), the Indian Navy is preparing to build new ships at the Garden Reach Shipbuilders & Engineers Ltd. (GRSE) shipyard, which are planned to replace the Russian Abhay-class corvettes.

The Indian Navy is preparing to complete the acquisition of seven Nilgiri-class advanced stealth frigates from Mazagon Dock Shipbuilders Ltd. (MDSL) and Garden Reach and Shipbuilders Ltd. (GRSE). The value of the local contribution to this project is expected to amount to around 75% of its total cost. In addition, the Indian Navy has allocated an initial budget for the development of eight next-generation corvettes (NGC).

Indian Navy commanders are eager to continue the long-term modernization plan of acquiring a twin-engine combat aircraft capable of operating from its aircraft carriers (a naval version of the Tejas combat aircraft, which is a multi-role combat aircraft) developed in collaboration with the Defence Research and Development Organisation (DRDO), Hindustan Aeronautics Limited (HAL), and the Aeronautical Development Agency (ADA).

Undoubtedly, this is a challenging plan that will require the Indian industry to undergo a cultural shift in regard to competition (as the Indian shipbuilding industry is dominated by public company monopolies), production quality, and meeting delivery deadlines for vessels and weapons systems – an area in which significant problems have previously arisen.

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<sup>162</sup> India's Defence Budget, 2022.

### *The Indian Navy's Activity*

This year, we have also decided to highlight the Indian Navy's activities in the western Indian Ocean: the Gulf of Aden, the Horn of Africa, and the Red Sea.

In 2015, Prime Minister Modi launched the national initiative for the Indian Ocean region called Security and Growth for All the Region (SAGAR). The vision is to build broad trust and promote mutual respect for maritime laws and peaceful resolution of disputes among the countries in the region. This initiative was also a response to China's Belt and Road Initiative and China's disregard for international rulings on sovereign water boundaries in the South China Sea region.

The Gulf of Aden and the Gulf of Oman form the western sector of the Indian Ocean and are included in this initiative, even though its more pressing targets were countries like Sri Lanka and the Seychelles Islands, where the Chinese penetration was more immediate and conspicuous. Thus, for example, as part of this initiative, India built and delivered two patrol boats to the Seychelles Coast Guard in April 2021.

With the increasing importance of the Red Sea for international trade, the Indian Navy's activity in the western part of the Indian Ocean and the Red Sea has expanded, along with more and more navies increasing their activities in the Gulf of Aden and the Red Sea. In the context of the Indian Navy, the previous review already noted that in 2018, India signed an agreement with the Sultanate of Oman and gained access and use of the facilities at Duqm Port, intended to serve the Indian Navy operating in the western part of the Indian Ocean. The geostrategic location of Duqm Port allows it to serve both the eastern and western corridors, as it is located far from the Strait of Hormuz, in the middle of the Indian Ocean, directly open to international waters, and situated near the international trade route between Asia and Europe. Moreover, Duqm Port is easily accessible to the shipping lines serving the Indian markets as well as Africa. This reflects, among other things, the importance India attaches to preserving its shipping routes, especially for energy imports from Gulf countries, which are a crucial component of the energy the developing Indian economy requires. In May 2021, India renewed two central defense agreements with Oman, its oldest strategic partner in the region. In February 2022, Oman's top defense official, Mohammed Nasser Al Zaabi, visited India to co-chair the tenth meeting of the Joint Military Cooperation Committee (JMMC). During the visit, Al Zaabi met with Indian Defense Minister Rajnath Singh, and at the end of the visit, the Indian Ministry of Defense released a statement regarding new avenues of cooperation between the two countries. These involve military-to-military engagements, including joint exercises, industry cooperation, and various ongoing infrastructure projects. The two countries decided to enhance cooperation in the defense industry, strengthening the

assessment that India is increasing its defense partnership in the western Indian Ocean region in light of China's growing presence in the area.<sup>163</sup>

With the aim of enhancing mutual maritime operational capabilities, the Indian Navy ship *INS Tarkash* conducted a joint exercise with Sudanese Navy ships *Almazz* (PC 411) and *Nimer* (PC 413) in the Red Sea near the naval base in Port Sudan in early July 2022. According to Indian Navy sources, the exercise provided "an opportunity for exchange of professional experiences and strengthening Maritime Cooperation between the two countries".<sup>164</sup> The Indian Navy frigate *INS Talwar*, deployed in the Gulf of Aden to combat piracy in the region, visited the port of Djibouti between May 25 and May 28, 2022. During its stay, the ship's crew participated in several bilateral meetings and activities aimed at strengthening stability and improving mutual operational capabilities with other multinational forces deployed in the region. The ship conducted joint training exercises with the Djibouti Coast Guard to enable its crew to better respond to emerging challenges and piracy threats.<sup>165</sup>

Despite India being a member of the Quadrilateral Security Dialogue (Quad), which is committed to supporting a free, open, inclusive, and resilient Indo-Pacific, and Prime Minister Modi's participation in the Quad's second summit held in Tokyo on May 24, 2022, along with Japanese Prime Minister Fumio Kishida, U.S. President Joe Biden, and Australian Prime Minister Anthony Albanese, India continues to maintain close relations with Russia. The defense relations between India and Russia are nearly half a century old and the Indian armed forces have been and still are equipped with Soviet weapon systems. India's Vice Chief of Naval Staff, Adm. SN Ghormade, said that the construction of Indian Navy ships in Russian shipyards is proceeding as planned, an interesting remark considering the ongoing Russia-Ukraine war that has cast a shadow on defense supplies from Moscow. At this stage, two *Talwar*-class frigates are being built in Russia for the Indian Navy. In addition, the Indian missile-guided destroyer *INS Kochi* conducted an exercise with the Russian Federation's naval forces led by the *Admiral Tributs* destroyer in the Arabian Sea in mid-January 2022. The exercise showcased cohesiveness and interoperability between the two navies and included tactical maneuvers, cross-deck helicopter operations and maritime activities.<sup>166</sup>

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<sup>163</sup> Saptarshi Basak, [How Is India's Access to Oman's Duqm Port Linked to China's Maritime Schemes?](#) *The Quintworld*, February 2, 2022.

<sup>164</sup> [INDO-SUDAN Joint Naval Exercise in Red Sea](#), *Indian Navy*, July 8, 2022.

<sup>165</sup> [INS Talwar visited Djibouti as Part of Anti – Piracy Patrol](#), *Indian Navy*, June 1, 2022.

<sup>166</sup> Manjeet Sehgal, [The Indian Navy's Indigenous INS Kochi Takes Part in Joint Exercise with Russian Warships](#), *India Today*, January 16, 2022.

In conclusion, the Indian Navy will continue to position itself as an ocean-going navy, with strategic capabilities and naval power aimed at deterring India's traditional rival, China, from exerting influence in the Indian Ocean region. Despite the United States' ongoing efforts to bring India closer as an ally and sever its traditional ties with Russia, India, in the spirit of the non-Alignment Movement (NAM) policy, will seek to maintain the diversification of its procurement sources and its cooperation with countries like Russia. In light of the Russian invasion of Ukraine and the annexation of breakaway regions to Russia, India has expressed its stance against the Ukraine war more firmly to counter criticism of its lax policy towards Russia. However, it has refrained from holding Russia responsible for the invasion and will not change its policy on importing inexpensive Russian oil and coal.<sup>167</sup> India will also maintain its membership in the Quad, which is a strategic dialogue between the United States, Japan, Australia, and India, held through talks among the member countries, as well as the strategic relationship it has developed with the United States in recent years. This issue will also be reflected in India's maritime strategy, which is updated periodically.

## The Turkish Navy

The Turkish Navy is ranked 11<sup>th</sup> in the world in the 2022 Global Naval Powers Ranking, which reflects its ambitious naval force buildup plan and other components included in the index.

*The Maritime Strategic Evaluation for Israel 2020–2021* featured a comprehensive article on the strengthening of the Turkish Navy.<sup>168</sup> Therefore, the current review will address only developments and changes that have taken place in the past year in relation to what was noted in the aforementioned article, particularly those related to Turkey's role in the conflict between Russia and Ukraine, with an emphasis on the maritime sphere.

### *The Impact of Russia's Invasion of Ukraine on Turkish Policy*

Russia's invasion of Ukraine has made Turkey a central player in the conflict, despite its lack of direct involvement. During the early days of the war, Turkey was praised by both Ukraine and its Western allies for supporting Ukrainian sovereignty and territorial integrity. Turkey provided armed drones to Ukraine and closed the Bosphorus and Dardanelles Straits to the passage of warships from the warring parties. By the end of

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<sup>167</sup> Krishna N. Das and Devjyot Ghoshal, [Analysis: India Sharpens Stand on Ukraine War but Business as Usual with Russia](#), *Reuters*, September 28, 2022.

<sup>168</sup> Shlomo Gueta, "The Turkish Navy – Its Strengthening Process and Operational Doctrine", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2020/21* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2021), pp. 168–186.

July 2022, its diplomatic efforts to ease the grain blockade from the Black Sea ports were welcomed, and an agreement was reached under the auspices of the UN with the consent of the parties involved.

Turkey closed the Black Sea to Ukrainian and Russian warships by invoking the 1936 Montreux Convention, which grants Turkey the right to prevent warships belonging to warring parties (except those returning to their home ports) from using the Dardanelles and Bosphorus Straits located within its territory. As a result, after Ukrainian forces sank the Russian Black Sea fleet's flagship, the *Moskva*, in mid-April, Russia was not able to send reinforcements from its other fleets to the Black Sea to bolster its forces (in retrospect, not carrying out the operation might have saved the Russian fleet from losing additional vessels). In addition to blocking the straits, Turkey also advised its NATO allies not to enter the Black Sea during the war in Ukraine to prevent the conflict from escalating. Turkish Defense Minister Hulusi Akar stated that this would maintain the status quo in the Black Sea and mitigate the possibility of any potential rivalry.<sup>169</sup>

The agreement for renewing grain exports from Ukraine through the Black Sea, in which Turkey played a significant role during the ongoing war, was described by UN Secretary-General António Guterres at the signing ceremony in Istanbul on July 27, 2022, as a "beacon of hope" in a world desperately in need of it. The UN plan, which also paves the way for Russian food and fertilizer to reach global markets, will help stabilize food prices that are rising worldwide and avert a famine affecting millions. The initiative specifically allows for significant volumes of commercial food exports from three key Ukrainian ports in the Black Sea: Odesa, Chernomorsk, and Yuzhny. At the agreement signing ceremony, the UN Secretary-General also announced the establishment of a joint coordination center (JCC) in Istanbul, which will monitor the implementation of the agreement and include representatives from Ukraine, Russia, and Turkey. The JCC will track the movement of commercial vessels to ensure compliance with the agreement, focusing exclusively on the export of commercial grains in bulk and related food products. In addition, the JCC will ensure on-site control and monitoring of cargoes from Ukrainian ports and report on shipments made under the initiative. It was agreed that Ukrainian vessels would lead the cargo ships into the international waters of the Black Sea while avoiding mined areas, and the cargo ships would then proceed towards the Bosphorus Strait along a corridor agreed upon by the parties. Ships sailing to and from Ukrainian ports will be inspected by organized JCC teams.<sup>170</sup>

<sup>169</sup> Tuvan Gumrukcu, [Turkey Urges Respect for Black Sea Straits Pact After Closing Access](#), *Reuters*, March 1, 2022.

<sup>170</sup> [Black Sea Grain Exports Deal 'A Beacon of Hope' Amid Ukraine War – Guterres](#), *UN News Global Perspective Human Stories*, July 22, 2022.

### *The Discovery of Gas Reserves in the Black Sea*

In mid-June 2022, Turkey began laying the first pipes for the subsea pipeline network that will transport natural gas from the Sakarya gas field, which is located 93 miles off the Turkish coast in the Black Sea, to the port of Filyos, about 400 km (250 miles) east of Istanbul. It is estimated that by mid-2023, Turkey will be able to start producing gas, enabling it to reduce its dependence on energy imports. In 2021, 45% of the gas used in Turkey came from Russia, and the rest from Iran and Azerbaijan. Turkey currently has three drilling ships, the *Fatih*, *Kanuni*, and *Yavuz*, which operate in the Black Sea and the Mediterranean Sea.<sup>171</sup>

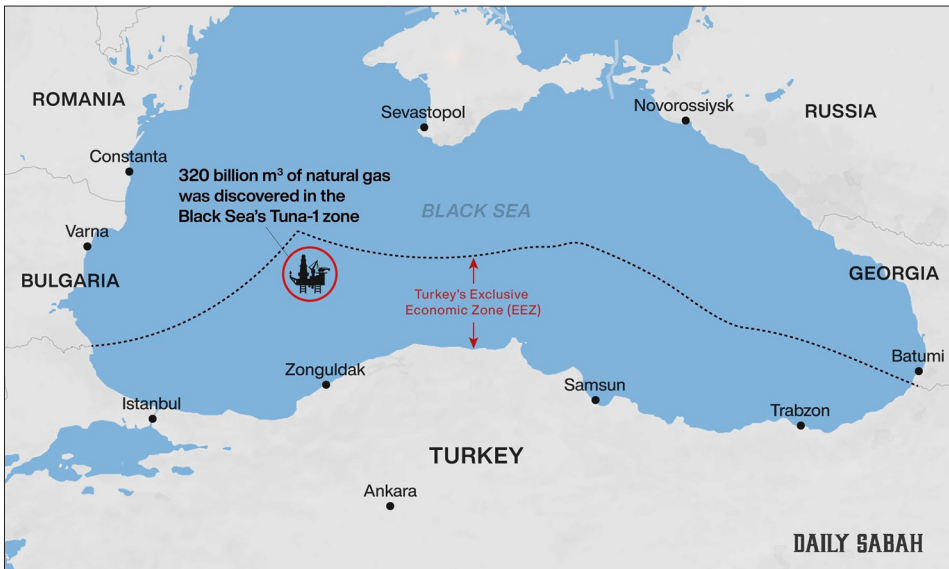


Figure 25: Turkey's economic waters in the Black Sea and the Sakarya gas field<sup>172</sup>

As time passes, it appears that Turkey's activity in the eastern Mediterranean Sea is increasingly drawing from an ambitious legal and geopolitical doctrine, based on a claim of sovereignty over a vast maritime area, referred to as the "Blue Homeland", or *Mavi Vatan* in Turkish. The strategy was developed by several admirals who were aware of the strategic importance of the maritime domain and gained traction among Turkey's military officials, political and economic establishment, and intellectual elites. The strategy was

<sup>171</sup> Melisa Cavcic, [WATCH: Türkiye Edging Closer to First Gas from Giant Black Sea Project as Pipe Laying Work Wraps Up](#), *Offshore Energy*, November 21, 2022.

<sup>172</sup> Ayşe Betül Bal, [Turkey Finds 320 BCM of Natural Gas in Black Sea, Erdoğan Announces](#), *Daily Sabah*, August 21, 2020.

adopted by President Recep Tayyip Erdogan, allowing him to establish his alliance with nationalist movements while providing a legal framework for his activity in Libya. The adoption of the strategy has led, among other things, to the growing importance of the Turkish Naval Forces (*Türk Deniz Kuvvetleri*), which have become increasingly involved in implementing this policy and its derivatives, including through their involvement in conflicts in the eastern Mediterranean Sea.

### *Turkey-Israel Relations*

The *Mavi Marmara* incident in 2010 and the subsequent deterioration of diplomatic relations between the two countries also affected the relationship between the Turkish Navy and the Israeli Navy. Following efforts to restore relations to their previous state, the relationship between the two navies has also improved, although it has not returned (and is unlikely to return) to the way it was in the mid-1990s.

In mid-August 2022, Turkey and Israel announced the normalization of relations and the return of their ambassadors. Israel's then-Prime Minister, Yair Lapid, stated that renewing relations with Turkey was an important asset for regional stability and an important economic development for Israeli citizens. The announcement was preceded by a conversation between Director General of the Israeli Foreign Ministry, Alon Ushpiz, and Turkish Deputy Foreign Minister, Sedat Onal, in which they agreed on the restoration of full diplomatic relations between Israel and Turkey and the return of both nations' ambassadors and consuls-general. In early September 2022, the Turkish frigate TCG *Kemalreis* entered the port of Haifa with a crew of 203. The frigate arrived together with U.S. destroyer USS *Forrest Sherman* (DDG-98) on a NATO patrol mission and remained in the Port of Haifa for two days. During the visit, an incident occurred in which the soldiers and officers of the Turkish frigate were not allowed to go ashore because the Turkish embassy had not informed the Israeli Foreign Ministry about the arrival ahead of time and the crew did not have the required permits. This was undoubtedly an exceptional occurrence, as nothing of the kind had taken place in the past 12 years. However, in order to reduce possible tensions, the IDF spokesperson said that the warship was making a stopover as part of "NATO activity".<sup>173</sup>

The prevailing assessment is that the warming of relations between Israel and Turkey is driven by Turkish President Erdogan's desire to emerge from the country's economic crisis before the presidential elections scheduled to take place in May 2023. Evidence of this can be found in Erdogan's attempts to improve relations with other regional rivals. One

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<sup>173</sup> Yossi Lavi, [For the First Time in a Decade: A Turkish Warship Anchored at the Port of Haifa](#), *Bachazit*, September 3, 2022 (Hebrew).

of his successes was the reconciliation with the wealthy Gulf States, with which he had had conflicts in the past due to his support for Qatar. In November 2021, the ruler of the United Arab Emirates, Mohammed bin Zayed, visited Ankara after years of cold relations with Turkey. The result of the visit was the announcement of the establishment of an Emirati investment fund in Turkey worth \$10 billion for, among other things, investment in Turkish infrastructure companies and the energy sector. In April 2022, Erdogan visited Riyadh, the capital of Saudi Arabia, despite tensions between the two countries over the murder of Saudi journalist Jamal Khashoggi, which took place on Turkish soil. Erdogan hopes that as a result of the visit, the Saudis will also open their wallets and direct massive investment funds towards Turkey.<sup>174</sup>

On October 27, 2022, then-Israel Defense Minister Benny Gantz met in Ankara with Turkish President Erdogan and Turkish Defense Minister Hulusi Akar. In a joint statement, Akar and Gantz announced that they had agreed to renew security ties. It should be noted that in recent years, as relations between Turkey and Israel deteriorated, official security ties between the countries were almost completely severed and conducted primarily in secret and between relatively low-ranking officials. Lately, secret meetings have been taking place between Israeli and Turkish security officials aimed at renewing relations, culminating in Gantz's visit to Ankara.<sup>175</sup>

### *Turkey-Libya Relations*

In recent years, Turkey, alongside Qatar, opened a military front supporting Fayeze Sarraj's recognized Libyan government against renegade leader Khalifa Haftar, who is backed by Russia, Egypt, the United Arab Emirates, and France. This ambitious front put Turkey on a potential collision course with Russia and could have also led to a confrontation with NATO, of which Turkey is a member. A possible shift in Turkey's position towards the regime in Libya can be seen in the visit of Aquila Saleh, head of the House of Representatives in eastern Libya, in the summer of 2022. The visit signaled a clear change in policy towards the civil conflict in Libya two years after Ankara provided military support to the government it had established in Tripoli against eastern forces led by Khalifa Hifter. Aquila Saleh, who heads the eastern-based House of Representatives and is considered an ally of Hifter despite discord between the two, met with President Recep Tayyip Erdogan and parliament speaker Mustafa Sentop during a visit to Ankara on August 1–2. Abdullah al-Lafi, vice chair of Libya's Presidential Council, accompanied him on the trip. Saleh has been

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<sup>174</sup> Dani Zaken, [What's Behind the Warming of Relations between Turkey and Israel](#), *Globes*, August 19, 2022 (Hebrew).

<sup>175</sup> Jonathan Lis and Yaniv Kubovich, [Gantz Meets with Erdogan and Defense Minister in Ankara, Announces Renewal of Security Ties](#), *Haaretz*, October 27, 2022 (Hebrew).



known for his rejection of two crucial agreements that the Government of National Accord signed with Turkey in 2019. The first allowed for the deployment of Turkish troops to train and support Libyan forces, while the second delineated maritime borders between the two countries, effectively allowing Turkey to declare Turkish economic waters between Crete and Cyprus as it conducts gas exploration in the eastern Mediterranean Sea. The invitation of Saleh to Turkey and his visit to Ankara stemmed from the changing dynamics in Libya, forcing the sides to adjust their positions. However, Turkey's reconciliation with the eastern part of Libya does not mean it has withdrawn its support for the existing government in Tripoli and it retains the option of influencing the entity elected in Libya's free elections (date currently undetermined) which the United States is pushing to hold. In this context, after a meeting with Libya's foreign minister in early August 2022, U.S. Ambassador to Tripoli Richard Norland said that the U.S. position is that "free and fair elections are the only means to establishing a national government with legitimacy".<sup>176</sup>

In late September 2022, Turkey's naval forces conducted a joint military exercise with their Libyan counterparts off the coast of the North African country in the central Mediterranean Sea. According to the Turkish news agency, Anadolu, the Turkish missile frigate TCG *Gaziantep* and the Libyan amphibious landing ship *Ibn Ouf-132* participated in the maneuvers under the command of Turkish naval forces. This highlights the importance Turkey attaches to security cooperation with Libya.<sup>177</sup>

### *Defense Expenditure and Enhancement of the Turkish Navy*

Turkey's defense expenditure is planned to grow between 2019 and 2025, reflecting the priority the Turkish government is giving to its defense industry, and particularly its maritime defense industry. Turkey's defense spending reached a peak in the 2020 fiscal year, amounting to \$14.8 billion – a 6.5% increase from the previous year. This trend is expected to continue and reach \$17.5 billion on defense spending by 2025.

Following the sanctions imposed by the United States on Turkey due to its purchase of the S-400 air defense system from Russia, local solutions were prioritized in the Turkish Navy's force buildup plan. As part of this, priority was also given to the Turkish defense industry to support the navy and upgrade its vessels and weapon systems. The reliance on the development of the Turkish industry is intended to turn the Turkish Navy into a maritime power comparable in size to those of Britain and France. This is reflected

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<sup>176</sup> Fahim Tastekin, [After Years of Hostility, Turkey Forges Ties with Eastern Libya](#), *El Monitor*, August 8, 2022.

<sup>177</sup> [Libya and Turkey Conduct Joint Naval Exercise in the Mediterranean](#), *The Libya Update*, October 2, 2022.

in the construction of the amphibious assault ship and helicopter carrier *Anadolu* (TCG *Anadolu*), which began in 2016. The *Anadolu* underwent sea trials in 2021 and is expected to enter service in 2022.<sup>178</sup> It is a multipurpose amphibious assault ship that can to some extent be defined as a light aircraft carrier, and is designed to head a Turkish task force in the Aegean Sea, the Black Sea, and the Mediterranean Sea, as well as in the Indian and Atlantic Oceans. The ship can carry drones and will also serve as a command center, protected by autonomous USVs. It is estimated that the *Anadolu* will be able to carry up to 50 Baykar TB-3 and MIUS drones. The Turkish Navy's ability to rely on command-and-control capabilities (including satellite links, communication via drones, and fixed and mobile command centers) allows it to use vessels such as the *Anadolu* as command-and-control centers.<sup>179</sup> It should be noted that the Turkish Navy has been the main victim of the sanctions imposed by the United States following Turkey's acquisition of the Russian S-400 air defense systems. The navy plans to operate F-35B aircraft (with vertical takeoff and landing capabilities) from the *Anadolu*, effectively turning it into a light aircraft carrier. During the negotiations for Sweden and Finland's admission to NATO, Turkey unsuccessfully attempted to condition its agreement on approval of the deal.

The Turkish Navy is expected to acquire two large landing ships (LSTs) in the next two years, which will actually be the largest vessels of this type in the world. In the next decade, I-class frigates, Ada-class corvettes, and TF-2000-class destroyers are expected to be built and delivered to the Turkish Navy for operation. The construction plan for the Istanbul-class frigates includes constructing four frigates to replace the older Yavuz-class frigates. The first ship was delivered to the Turkish Navy in early 2021 and the remaining three ships will be supplied by the mid-2020s. The Golcuk naval shipyard is also expected to complete the construction of six 214-series submarines (Piri Reis-class) by the middle of the current decade. Mid-life refurbishment plans for the Barbaros-class frigates and the 209-series submarines built in German shipyards (Preveze-class Submarines) are expected to enable them to remain in service until the mid-2030s. The Turkish Navy's development plan also includes a prototype of a domestically manufactured unmanned surface vessel (ULAQ AUSV).

In April 2022, Turkey held one of the largest naval exercises in its modern history. During the Blue Homeland 2022 exercise, more than 122 warships, fighter jets, aerial refueling aircraft, reconnaissance aircraft, ATAK helicopters, drones, naval commando units, and teams specializing in chemical, biological, radioactive, and nuclear warfare were deployed. The exercise took place in the Aegean Sea, the Mediterranean Sea, and

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<sup>178</sup> Tayfun Ozberk, [Turkish Navy's Future Flagship TCG Anadolu Completes First Helo Landings](#), *Naval News*, November 20, 2022.

<sup>179</sup> Amir Husain, [Turkey Builds a Hyperwar Capable Military](#), *Forbes*, June 30, 2022.

the Black Sea simultaneously, and in the final stage of the exercise, from April 18–21, 72 ships visited ports surrounding Turkey. Unlike in previous Blue Homeland exercises, warships in the eastern Mediterranean Sea conducted firing drills and regular exercises in maritime areas that would not lead to confrontations with Greece. This was instead of carrying out military operations based on the Blue Homeland doctrine, which, in a maximalist approach, defines Turkey's maritime jurisdiction borders in the Aegean Sea and the eastern Mediterranean Sea. Some interpret this shift as evidence that Turkey has abandoned its foreign policy of exercising military power in the eastern Mediterranean based on the Blue Homeland doctrine and that it has put the doctrine on hold for now in the eastern Mediterranean.<sup>180</sup>

Turkey, which until the late 1990s was an importer of military vessels and submarines from foreign shipyards and whose surface fleet relied on U.S. Hazard Perry-class frigates, is becoming an exporter of vessels and combat systems, which is helping it advance its international political standing. Recently, the Istanbul shipyard has completed the construction of the first of two MILGEM-class corvettes. In the handover ceremony held in mid-August 2021 at the Istanbul shipyard, which was attended by Turkish President Erdogan and Pakistani President Dr. Arif Alvi, the two leaders noted that these ships "would significantly add to the lethality of Pakistan Navy's capabilities and contribute in maintaining peace, security and balance of power in the Indian Ocean Region".<sup>181</sup> The Turkish shipyard is assisting Pakistani shipyards in Karachi to establish a production line where four additional corvettes of this model will be built for the Pakistani Navy. This aspect of cooperation should be seen in the broader context of the deepening relationship between Turkey and Pakistan, which includes addressing the challenges both countries are expected to face following the completion of the U.S. and NATO's withdrawal from Afghanistan.

### *The Turkish Navy's participation in the multinational force operations in the Gulf of Aden and the Persian Gulf*

On February 2, 2022, the Grand National Assembly of Turkey extended the presence of the Turkish Navy in the Gulf of Aden, Arabian Sea, and adjacent seas for one more year. Since 2009, the Turkish Navy has commanded the multinational counter-piracy task force CTF-151 six times and carried out at least 21 deployments in the area to combat piracy. Its ships conduct patrols, intercept ships suspected of piracy/armed robbery, escort and protect

<sup>180</sup> Fatih Yurtsever, [Analysis, Blue Homeland: Naval Exercise Signals Departure from the Doctrine](#), *Turkish Minute*, April 21, 2022.

<sup>181</sup> Martin Manaranche, [Istanbul Shipyard Launched First Babur-Class Corvette for Pakistan Navy](#), *Naval News*, August 16, 2021.

merchant ships sailing in the area, assist them in case of pirate/maritime robber attacks, intervene, stop, neutralize, and confiscate any vessels used by pirates/sea robbers using proper force if necessary, and arrest and detain pirates/sea robbers and armed persons in these vessels. The Turkish Navy ships also participate in executing various policing duties, including interrogation and collecting evidence against suspicious vessels.<sup>182</sup>

### *Conclusion*

Russia's campaign in Ukraine may have a geopolitical impact on Turkey's position in the international system. While dissatisfaction with the West and anti-Western sentiment have facilitated warm relations and cooperation between Russia and Turkey, Russian geopolitical revisionism has almost always pushed Turkey closer to the West, as it poses a direct security threat to Turkey. Historically, the focal point of the Turkish-Russian rivalry was the Black Sea. From the Turkish perspective, Russia's actions – from the war in Georgia, through the annexation of Crimea, to the invasion of Ukraine – all tilt the balance of power in this region decisively in favor of Russia. While the details and nuances of Russia's policies in each of these cases may vary, together they point to an unmistakable outcome: Russian revisionism in the post-Soviet space and an aspiration to turn the region into a sphere of Russian domination, which, according to experts, could aggravate Turkey's threat perception with regard to Moscow.<sup>183</sup> The recent crises expand the common ground between Turkey and the West, although the West's "geopolitical resurgence" will not change Turkey's perception of a multipolar world as better serving its interests. Therefore, it is unlikely that Turkey will give up its quest for autonomy in its foreign policy.

Turkish authorities consider the Turkish Navy to be a central tool in the geopolitical game. In recent years, it has increased the number of its vessels and enhanced its capabilities and the government infrastructure that allows it to upgrade its capabilities and autonomy in developing advanced domestic-made weaponry. The navy will continue to be part of NATO forces, but will also operate independently in the eastern Mediterranean and Black Seas to protect Turkey's maritime interests.

### **The Egyptian Navy**

According to the 2022 Global Naval Powers Ranking, the Egyptian navy is ranked as the 13<sup>th</sup> most powerful navy in the world. This reflects Egypt's desire to become the strongest

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<sup>182</sup> [Turkish Parliament Extendst the Presence of The Navy in Gulf of Aden for One Year](#), *Bosphorus Naval News*, February 6, 2022.

<sup>183</sup> Galip Dalay, [Deciphering Turkey's Geopolitical Balancing and Anti-Westernism in Its Relations with Russia](#), *SWP Comment*, May 20, 2022.

maritime power in the eastern Mediterranean and Red Seas. In my opinion, the ranking is based on the types and quantity of vessels, neglecting additional factors, such as the quality of combat systems, the level of operation, and more. However, it does indicate a clear and undeniable trend, which is that Egypt has been investing significant resources in its navy in recent years, particularly based on an understanding of the important role its navy plays in facing the geopolitical and strategic challenges emerging in the Middle East.

In July 2022, Egypt's revenues from passage through the Suez Canal for the 2021–2022 fiscal year amounted to \$7 billion, compared to \$5.8 billion in 2020–2021, representing a 20.7% increase.<sup>184</sup> Alongside the rise in revenues (which were the highest relative contribution to Egypt's economy), the risk level for navigation, especially in the southern Red Sea near the Bab el-Mandeb Strait, has increased due to the actions of the Houthis, the Iranian proxies, emphasizing the importance of the Egyptian navy's role in this arena. The Mediterranean Sea Fleet (the Northern Fleet) is dedicated to dealing with the growing geopolitical conflicts in the eastern Mediterranean region over maritime zones and hydro-energy resources. Its main mission is to protect Egypt's economic interests, especially the new gas fields that have been discovered and developed. In addition, the Northern Fleet is trained and equipped to participate in handling the flow of refugees from North Africa to Europe.

### *The Egyptian Navy's Force Buildup*

In the 1980s and 1990s, Egypt began acquiring American weapon systems (and in the case of the Egyptian Navy, Oliver Hazard Perry-class frigates) to replace its primarily Soviet-based arsenal. Now, for political reasons, it has changed direction and begun to diversify its defense procurement, including for the Egyptian Navy, as will be described below. The Egyptian Navy's ranking as the 13<sup>th</sup> most powerful in the world in 2022 reflects the impressive force buildup plan it has implemented in recent years and the diverse range of vessels it operates.

Egypt has become one of only five countries in the world to possess Mistral-class amphibious assault ships, which were built for it in France: the *Gamal Abdel Nasser* and the *Anwar Sadat*. Ships of this type allow Egypt to carry out amphibious operations far from its territory in the Red Sea (primarily) and in the Mediterranean Sea.

The Egyptian Navy is equipped with Gowind 2500-class frigates, known in Egypt as El-Fateh frigates, which are manufactured by the French shipyard Naval Group Lorient and assembled at the Alexandria shipyard in Egypt. The Alexandria shipyard has begun conducting sea trials for the Gowind-class corvette intended for the Egyptian Navy. The

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<sup>184</sup> [Egypt's Suez Canal Revenue Hits \\$7 Billion Record Peak](#), *Reuters*, July 4, 2022.

ENS Luxor corvette is the last of the four Gowind-class ships ordered by the Egyptian Navy. It is also the third ship that was built domestically in Egypt, as the ENS El Fateh-class flagship was constructed in France by the Naval Group defense company.<sup>185</sup>

In early August 2021, the fourth Type 209/1400 submarine was delivered to the Egyptian Navy. In early September 2022, the press reported that Egyptian President Abdel Fattah el-Sisi wanted to purchase up to six Barracuda-class submarines from the French Naval Group, in which the French government holds a 62% stake. These are nuclear-powered submarines and the cost of acquiring six of them is expected to exceed €5 billion. The French government seems to be dragging its feet in responding to Egypt on this matter.<sup>186</sup> Along with the news about Egypt's desire to purchase submarines from France, there were reports that the Egyptian Ministry of Military Production (MoMP) is expected to hold talks with ThyssenKrupp, which built the four Type 209 submarines for Egypt, regarding technology transfer and a production agreement for submarines, including the establishment of production lines at one of Egypt's ports.<sup>187</sup> Regardless of whether the reports are accurate, this demonstrates Egypt's determination to continue advancing the buildup of its naval forces in general and its submarine fleet in particular, including by establishing production infrastructure in Egypt itself.

Mohammed al-Kenany, director of the Military Studies Unit at the Cairo-based Arab Forum for Analyzing Iranian Policies, explained that Egypt is seeking to expand and develop its submarine fleet in order to maintain its position in the naval balance of power in the region. He added that this was not the final step in arming process, and that since many countries in the region are increasing their underwater capabilities, Egypt will not be satisfied with just four submarines from Germany. According to al-Kenany, this is because Egypt operates two fleets – the Northern Fleet in the Mediterranean Sea and the Southern Fleet in the Red Sea – and due to the increasing challenges and threats to freedom of navigation posed by terrorism and arms smuggling, among other things. In this context, it should be noted that the current contract between Egypt and the German shipyards includes an option to order two additional submarines.

### *The Egyptian Navy's Organization for Its Mission*

In January 2017, Egypt decided to divide its navy into two fleets: the Northern Fleet and the Southern Fleet. The Northern Fleet's area of operation covers the Mediterranean Sea

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<sup>185</sup> [Egyptian Navy's fourth Gowind-Class Corvette Begins Sea Trials](#), *Robban Assafina*, July 8, 2022.

<sup>186</sup> [Inside Story on Talks over €5bn Naval Group Submarine Sale to Egypt](#), *Africa Intelligence*, September 7, 2022.

<sup>187</sup> Fatima Bahtić, [Egypt Sets Sights on French Barracuda-Class Submarines](#), *Naval Today*, March 10, 2022.

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and its mission is to secure Egypt's northern and western strategic fronts. The Southern Fleet covers the Suez Canal and the Red Sea area and is charged with securing the eastern and southern fronts. This division has improved the performance and flexibility of several naval commands and provided a new approach to Egypt's naval force buildup, based on the nature of the operations assigned to each fleet and defined by the geopolitical context of the operational area.<sup>188</sup>

As noted, the Northern Fleet is dedicated to dealing with the growing geopolitical conflicts in the Eastern Mediterranean over maritime zones and to protecting the energy resources extracted from the sea. Its main mission is to defend Egypt's economic interests, especially the newly developed gas fields. The Northern Fleet is also in charge of controlling the flow of illegal immigration from North Africa to Europe.

The Southern Fleet deals mostly with deterring the security threats arising from the political instability in Yemen and the Horn of Africa, where Iranian-backed terrorist organizations and militias are continually harassing ships and blocking vital maritime chokepoints. In this sense, the Southern Fleet plays a crucial role in securing international shipping and trade between Asia, Africa and Europe via the Red Sea and the Suez Canal.

The July 3 Naval Base is expected to play a crucial role in increasing Egypt's political and military cooperation with Libya, thereby putting an end to Turkish and Russian military interventions there. The participation of Libya's interim president, al-Menfi, in the opening ceremony of the new base in Gargoub only reinforces this assumption. As far as the senior Egyptian administration is concerned, Libya represents the strategic security depth on Egypt's western border and the stationing of Turkish soldiers and foreign mercenaries under the separate command of Turkey and Russia on Libyan soil are a source of concern.<sup>189</sup>

The Egyptian Navy utilizes the diplomatic dimension of the naval strategy and conducts joint exercises with various navies without aligning itself with any one of the blocs. In August 2022, NATO's USS *Forrest Sherman*, which was the flagship of Standing NATO Maritime Group 2 (SNMG2) at the time, and Spanish Navy ship *ESPS Almirante Juan de Borbón* visited the port of Alexandria and conducted a passing exercise with the Egyptian Navy ship *ENS El Fateh*. During the visit, senior commanders from the task force lectured and trained students from the Egyptian Naval War College, presenting various NATO

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<sup>188</sup> For more on this topic, see Shaul Chorev, "Global Developments in the Maritime Domain", in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2022), pp. 95–96.

<sup>189</sup> For more on the July 3 Naval Base and the role it is expected to play, see *ibid.*, pp. 96–97.

operational concepts, including task group command and control, rules of engagement, mine countermeasure operations, and maritime interdiction.<sup>190</sup>

In the Red Sea arena, the Egyptian Navy took command of Combined Task Force 153 (CTF-153) from the U.S. Navy on December 12, 2022, during a ceremony in Bahrain, where the multinational task force's headquarters are located. Capt. Robert Francis of the U.S. Navy, who had led CTF-153 since April 2022, transferred command to Egyptian Navy Rear Adm. Mahmoud Abdelsattar. This marked the first time that Egypt has assumed command of the multinational naval force, in which 34 countries participate and which Egypt joined in 2021. CTF-153 was established by the U.S. Navy's Fifth Fleet in April to combat smuggling and other illegal activities in the Red Sea, Bab el-Mandeb, and Yemeni waters.<sup>191</sup> This is the fourth such grouping under the U.S.-led Combined Maritime Forces (CMF), a multinational maritime security cooperative first established by the United States to patrol Middle Eastern waters in the aftermath of the attacks on September 11, 2001.

## The Iranian Navy

The Iranian Navy ranks 18 in the 2022 Global Naval Powers Ranking. Last year, a special chapter written by Shlomo Guetta and Motti Elharar was published in the *Maritime Strategic Evaluation for Israel* examining Iran's naval force buildup.<sup>192</sup> Additional publications also addressed the activities of the Iranian Navy and the Iranian Revolutionary Guard Corps (IRGC) Navy. Therefore, this year we chose not to present an extensive review of this navy, but only to mention notable events that occurred in regard to force buildup and naval activity.

The patrol vessel *Shahid Soleimani*, which is built with stealth technology, equipped with a vertical missile launch system, and allows for a maritime helicopter to be operated from it, was delivered to the Iranian Navy in the summer of 2022 in a ceremony held in the southern city of Bandar Abbas. The ship is named after the commander of the IRGC's Quds Force, who was killed in a U.S. drone strike in Baghdad in January 2020. In addition, two Shahid Rouhi missile boats entered active service in the IRGC Navy.

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<sup>190</sup> [Passing Exercise Between NATO and Egyptian Navy in the Med](#), *Naval News*, August 30, 2022.

<sup>191</sup> Jared Szuba, [Egypt's Navy to Lead New Red Sea Maritime Task Force](#), *Al Monitor*, September 12, 2022.

<sup>192</sup> Shlomo Guetta and Motti Elharar, "The Development of the Iranian Naval Branch in Recent Years and the Implications for Israel and the Middle Eastern Countries," in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2022), pp. 139–163.



A number of extensively refurbished vessels joined the Iranian Navy's Southern Fleet in a ceremony held on September 4. These include two missile-launching boats, a logistics ship, and a light Ghadir-class submarine, which were "restored and refurbished" in Iran. It is important to note that although Iran sometimes exaggerates its maritime achievements and its ability to operate far from Iranian shores, the considerable investments it has made in this sector have yielded significant progress in terms of its regional naval standing and power.<sup>193</sup>

Iranian maritime activity in the Red Sea has continued during the past year. The IRGC's naval force continued to provide assistance to the Houthi military forces in Yemen, usually by smuggling weapons and components for producing weapons. Some of these shipments were intercepted by coalition forces led by the U.S. Fifth Fleet. At this stage, no activity by IRGC vessels has been detected in the Red Sea; however, this is expected to change in the near future with the introduction of the new Qasem Soleimani-class missile corvette into operational service. It is possible that an IRGC naval task force that includes the new corvette and is escorted by one of the mother ships previously converted for use by the IRGC Navy will carry out this mission.

In the past year, the Iranian navy has continued its activities in the Red Sea with task forces that typically included a frigate and an accompanying support/mother ship. Some of these activities involved escorting tankers sailing to the Suez Canal to transport fuel to Syria.

On August 30, U.S. CENTCOM announced that on August 29, U.S. Fifth Fleet forces prevented an IRGC support vessel in the Persian Gulf from towing an American USV engaged in a patrol and imagery collection mission. Iran released the ship hours later, after explaining the principles of "navigation safety and security" to U.S. forces in the area. In early September, just days after the IRGC attempted to seize American USVs in the Persian Gulf belonging to the Fifth Fleet, the Iranian navy tried to repeat the action and seize two more American USVs operating in the southern Red Sea. Two destroyers belonging to the Fifth Fleet, the USS *Nitze* and USS *Delbert D. Black*, deployed MH-60 Sea Hawk helicopters that hovered near the Iranian towing vessel until the Iranians released the USVs.<sup>194</sup>

<sup>193</sup> Farzin Nadimi, [New Iranian Warship Signals Longer Maritime Reach, More Aggressive Strategy](#), *Washington Institute, Policy Analysis, PolicyWatch* 3646, September 16, 2022.

<sup>194</sup> Mallory Shelbourne, [Iran Temporarily Captures Two U.S. Saldrones in Red Sea](#), *USNI News*, September 2, 2022.

On November 15, 2022, the Pacific Zircon oil tanker, which was sailing under the Liberian flag, operated by a Singaporean company, and partially owned by Israeli businessman Idan Ofer, was attacked by an armed Iranian drone about 240 km off the coast of Oman. According to a statement from the U.S. Central Command in the Middle East, the drone was identified as a version of the Iranian-made Shahed. Iran denied involvement in the attack.<sup>195</sup>

Between December 21 and 27, 2022, the Iranian, Russian, and Chinese Navies conducted the joint military exercise Sea-2022 in waters east of the sea area from Zhoushan to Taizhou, in East China's Zhejiang Province. This is a normal arrangement based on the annual military cooperation plan between the Chinese and Russian militaries. However, in the context of the Russia-Ukraine conflict and the fact that the military exercise area is the closest it has been to Taiwan in the past decade, the misunderstandings and misinterpretations arising from this joint military exercise were greater than in previous years and have increased the risk of a flare-up.<sup>196</sup>

## The Royal Saudi Navy

The Royal Saudi Navy was founded in 1960 and began to grow significantly with the assistance of the United States, as did the Imperial Iranian Navy. Following the Iranian Revolution, Saudi Arabia launched an additional expansion plan for its navy, which was carried out with French support. Additional vessels were acquired from the United Kingdom and France during the 1980s and 1990s. In 1980, the Royal Saudi Navy's main command, control, and communication centers were built by an American contractor. The Royal Saudi Navy ranks 30th in the world in the Global Naval Powers Ranking for 2022. Based on the ambitious force buildup plan it is leading and the resources invested in it, it will likely rank higher by the end of the decade.

The Royal Saudi Navy operates from several bases along 2,500 kilometers (1,600 miles) of the Saudi coastline, in the Red Sea and the Persian Gulf, and has two fleets. The Eastern Fleet operates in the Persian Gulf from the King Abdulaziz Naval Base in Jubail, and the Western Fleet operates in the Red Sea from the King Faisal Naval Base in Jeddah (Al-Qadima military port). Each fleet has full military capabilities, including warships, support vessels, administrative and technical support, a naval air fleet, marines, and special security units.

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<sup>195</sup> Richard Allen Greene, Hadas Gold, Mostafa Salem and Oren Liebermann, [CNN Obtains Exclusive Photos of Drone Attack Aftermath on Pacific Zircon Tanker Ship](#), *CNN*, November 17, 2022.

<sup>196</sup> [China-Russia Joint Exercise is Upright, Aboveboard: Global Times editorial](#), *Global Times*, December 22, 2022.

Amid regional tensions, Saudi Arabia is vigorously advancing a multi-billion-dollar modernization process for its navy, which includes five new Avante 2200 corvettes being built in the Bay of Cadiz, Spain. These vessels are part of a multi-year expansion plan. The 104-meter-long corvettes are equipped with air defense systems, anti-submarine warfare, and surface combat capabilities. The first corvette in the series was delivered to the Royal Saudi Navy at the end of March 2022, in a ceremony held at the La Carraca Naval Base facilities in San Fernando, Cadiz.<sup>197</sup> While the new warships are primarily intended for surveillance and control operations, Saudi Arabia sees their arrival as an opportunity for technology transfer that may contribute to the Vision 2030 initiative. As part of the technology transfer, the country has developed its first naval combat system, the Hazem. The system is already integrated into the first corvette, the *Al Jubail*, which includes a combat management system, integrated communication, combat system integration, integrated platform management, a fire control system, and a training system.<sup>198</sup>

In mid-September 2022, the ship arrived at its home port in Jeddah, located on the Red Sea. The new warships are expected to join the Kingdom's Western Fleet to guard approximately 1,800 kilometers (1,118 miles) of its coastline in the Red Sea and secure freedom of navigation in the Gulf of Aden. The Gulf of Aden is strategically important to Saudi Arabia, as it borders Yemen, where the Iran-backed Houthis are based and from where they have recently launched ballistic missiles and unmanned aerial vehicles (UAVs) against strategic sites in Saudi Arabia, causing damage to important infrastructure. The Saudis aim to address both the direct attacks carried out by the Houthis on commercial and civilian support ships and the activities of Somali organizations involved in piracy, human trafficking, and weapons and drugs smuggling. These Somali vessels have previously collaborated with the Houthis in transporting African fighters to join them in Yemen. The Houthi rebels have previously launched repeated attacks using boats laden with explosives in the southern Red Sea, including an attack against an oil tanker at the Jeddah port in December 2020. Arms smuggling to Yemen is another threat to Saudi security, and some of it is carried out through routes in the Red Sea and the Gulf of Aden.

Saudi Arabia currently operates three multi-purpose anti-air warfare Al Riyadh F3000S-class frigates, which were built by the French shipyard DCN for the Royal Saudi Navy and ordered in 2002. These frigates are capable of operating in open seas and played a key role during the anti-Houthi effort in 2015, known as Operation Decisive Storm. From May 29 to June 4, 2022, a joint naval exercise, Red Wave-5, was conducted and led by the Royal Saudi Naval Forces with the participation of the Red Sea coastal countries of Djibouti,

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<sup>197</sup> [Navantia Delivers the First Avante 2200 Class Corvette to The RSNF](#), *Naval News*, March 31, 2022.

<sup>198</sup> Alie Peter and Neil Galeon, [Saudi Arabia's First Avante 2200 Corvette Arrives in Jeddah](#), *The Defense Post*, September 2022.

Egypt, Jordan, Somalia, Sudan and Yemen in addition to the Royal Saudi Land Forces, Royal Saudi Air Forces and Saudi Border Guard. The commander of the Saudi Western Fleet, Adm. Yahya bin Mohammed Asiri, who led the exercise, said it was aimed at "enhancing military cooperation, unifying of concepts, raising the combat readiness and exchange of experience that would contribute to upgrading the capabilities to protect the seas and regional and international water passages and guarantee maritime navigation in the Red Sea".<sup>199</sup>

In late September 2022, the Saudi Western Fleet began operating for the first time with the International Maritime Security Construct (IMSC) in the Red Sea. This activity signifies an expanded partnership between the multinational coalition and the Royal Saudi Navy. The Western Fleet, which is concentrated in the Red Sea, now contributes to the IMSC missions in the Bab el-Mandeb Strait area, and the HMS *Al Jubail* corvette conducts patrols as part of this framework. The Saudi Eastern Fleet has been operating with the IMSC since 2019, when Saudi Arabia joined the nine-member coalition.<sup>200</sup>

### *The Establishment of a Maritime Technological Infrastructure in Saudi Arabia*

Part of the joint technology transfer between Saudi Arabia and Spain led to the production of Saudi Arabia's first maritime combat system, the Hazem, which is now integrated in the first corvette, the *Al Jubail*. As mentioned, it includes a combat management system, integrated communication, combat system integration, integrated platform management, a fire control system, and a training system. The Saudis believe local production can help develop the Saudi manufacturing sector and create employment for Saudi citizens, which are two central goals of the Saudi Vision 2030 policy.

In 2018, Saudi Arabia signed a contract with the American company Lockheed Martin for four multi-mission surface combatants (MMSC) based on the U.S. Navy's Freedom-class littoral combat ship, which encountered complex problems when it was entered into operational service in the U.S. Navy. The first steel-cutting ceremony for the MMSC 1 ship was held on October 24, 2019, and the ceremony for the second ship, the MMSC 2, was held on January 28, 2021. These vessels are expected to serve in the Saudi Eastern Fleet.

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<sup>199</sup> [Royal Saudi Navy's Western Fleet Wraps Up Red Wave-5 Maneuver](#), *Saudi Gazette*, June 3, 2022; Baher al-Kady, [Saudi Arabia, Egypt Leads Regional Naval Drills in Red Sea](#), *Al-Monitor*, June 11, 2022.

<sup>200</sup> [Saudi Arabia Expands Maritime Partnership with International Coalition](#), *NAVCENT Public Affairs*, September 28, 2022.

## Conclusion

The year 2022 brought with it surprises and changes regarding global developments in general and maritime aspects in particular. The world had begun to recover from the COVID-19 pandemic, but found itself tangled in a web of international crises and challenges that affect its ability to recover from the pandemic. These include the competition between the United States and China, which has intensified, Russia's unexpected invasion of Ukraine and its impact on European countries, and the unfolding climate crisis, which demands attention and the formulation of an international plan to address it.

The conflict between Russia and Ukraine has been ongoing since February 2022, although its intensity has decreased with the arrival of winter. However, its consequences are more far-reaching than they may appear on the surface and include, among other things, Russia's attempt to position itself against NATO countries using new rules of engagement, including the implied threat of using nuclear weapons under certain circumstances.

Global trade, which has been steadily growing in recent years, is expected to lose momentum in the second half of 2022 and remain relatively stagnant in 2023, as numerous shocks are weighing down the global economy. Economists from the World Trade Organization (WTO) noted that global trade volumes in goods would increase in 2022, but that the growth would be very moderate in 2023 compared to 2022.

In the maritime domain, the United States is continuing to focus its efforts on creating a coalition of countries against China, as it has done through the trilateral alliance with the United Kingdom and Australia (AUKUS) and the establishment of regional mechanisms such as the Quadrilateral Security Dialogue (the Quad) with Australia, India, and Japan. The United States is conducting Freedom of Navigation Operations (FONOPs) in the South China Sea aimed against China's excessive maritime claims regarding its territorial waters in the region.

In the eastern Mediterranean Sea, the search for additional gas fields will continue, facilitated by the Eastern Mediterranean Gas Forum (EMGF), which aims to contribute to the stability and prosperity of the region's population by coordinating policies among exporting, consuming, and transit countries. However, conflicts over maritime border demarcation among the region's countries, and primarily between Turkey on one side, and Greece and Cyprus on the other, could lead to a deterioration of relations between the rivals and potentially escalate to a military conflict.

The Red Sea, Gulf of Aden, and Persian Gulf will continue to be a focal point of conflict between Iran and its proxies and the moderate countries in the region, particularly Egypt and Saudi Arabia. In the ongoing shadow war between Iran and Israel, Iran will continue

to use the tactic of targeting merchant ships that have any affiliation to Israel sailing in the area whenever it feels the need to respond to Israeli actions against it or against its proxies in other areas, such as Syria and Lebanon.

Climate change and global warming are clearly evident in the Middle East, which is currently considered one of the most significant global warming hotspots. These changes will become more frequent and intense and will be accompanied by events such as droughts, storms, heatwaves, and rising sea levels. As climate change intensifies, dangerous weather events are becoming more frequent or severe. The maritime domain's sensitivity to these changes is significant, requiring countries to develop plans to cope with these challenges, including placing responsibility for implementing them on the naval forces and coastal guards of the various countries.

Given that this situation evaluation refers to Israel's maritime domain, its final chapter will present the gathered insights regarding all the aspects covered in this report, examine their implications for Israel, and translate them into recommendations for the Israeli government and various governmental entities responsible for addressing these areas.

## China's Port and Shipping Diplomacy

*Benni Ben Ari*

### The History of China's Commerce and Ports

For its thousands of years of existence, since the imperial age, China's geostrategy has always been land-based and defensive. At the same time, because of its long coastlines and many rivers, shipping and highly technologically advanced ship-building began developing as early as the Han dynasty (256–220 BCE). Years later, the Tang and Song dynasties (618–1279 CE) established the Maritime Silk Route, connecting China with Europe and the Middle East. The pinnacle of ancient maritime exploits was achieved during the Ming dynasty (1368–1644) when Admiral Zheng voyaged across the seas with enormous treasure ships between 1405 to 1433, expanding China's maritime diplomacy and commercial network all the way to East Africa.<sup>1</sup> But China did not use any of this as a basis for establishing naval power, in part because all of its enemies were continental nations. Having no overseas enemies, it did not invest in building a navy. Moreover, in response to opposition from supporters of Confucianism and to save on military expenditures, the navy was entirely scrapped after Zheng He's seventh voyage (in the course of which he died in 1432). Maritime commerce with Europe was henceforth also severely curtailed.<sup>2</sup> In fact, China closed itself off to the outside world, losing its global status and its control of the seas. The Ming dynasty did not take advantage of the opportunity to build a permanent presence in far-flung corners of the world. Thus, for almost its entire history, China did not engage in a policy of establishing colonies or conquering distant territories by sea. As a result, its international status was weak until the end of the 20th century.<sup>3</sup>

With the arrival of Europeans in China (1500–1750), China's maritime trade was in private hands and the country lacked a government navy. Not surprisingly, during the Opium Wars (the first between the United Kingdom and the Ching dynasty lasted from 1839 until 1842, and the second between assorted western nations and China from 1856 until 1860), China was actually defeated at sea. Only then did the Chinese discover that enemies could also appear in the maritime domain. The change in China's attitude to a military naval power came only towards the end of the 20th century, when it became clear that China's economy depended on commerce by sea.

<sup>1</sup> For more on Zheng He's voyages, see: "[Zheng He's Achievements](#)", *Encyclopedia Britannica*.

<sup>2</sup> G. Wang, "[China, ASEAN and the New Maritime Silk Road](#)", *The Straits Time*, November 22, 2021.

<sup>3</sup> V. Bileta, "[Zheng He's Last Voyage, How Ming Chin, Closed Themselves to the World](#)", *The Collector*, October 29, 2022.

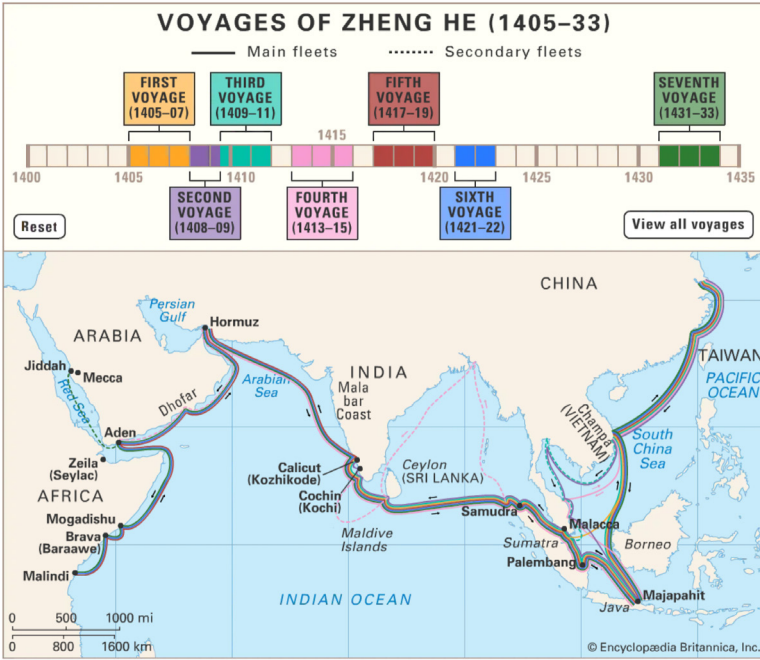


Figure 1: [Admiral Zheng He 7 voyages](#)



Figure 2: [The Treasure Fleet under Admiral He Command](#)

This article examines the development of China's ports and commercial maritime traffic and describes its port and shipping diplomacy, which led the country to becoming today's leading power in maritime trade. Sea trade now plays an integral role in China's economic



plans, including the Belt and Road Initiative (BRI),<sup>4</sup> by preparing for economic and strategic competition, mainly with the United States. This article seeks to answer the question of whether China's port and shipping diplomacy is for commercial and economic purposes only, or whether it also serves geopolitical and geostrategic aims, such as achieving hegemony and greater influence on the global agenda and being in a position to promote its policies on a global level, as part of the competition with the USA.



Figure 3: [Container port in Shanghai](#)



Figure 4: [Hansaport bulk cargo port](#)

## Scope of Global Maritime Commerce

In 2000, the global commercial shipping fleet consisted of 99,800 vessels, with a net tonnage of 100 and above; of these, 53,000 had a net tonnage of 1,000 and above. In January 2021, capacity was equivalent to 2.13 billion DWT (deadweight tonnage) (Table 1). In 2020, delivery of new ships fell by 12 percent (as a result of the Covid-19 lockdowns, which wreaked havoc with industrial marine activity). Most of the ships delivered were bulk cargo ships, followed by oil tankers, and container ships.<sup>5</sup> According to another source, the number of vessels in the world, including fishing ships and tugboats of 100 and above tonnage, was 120,000, of which 63 percent were commercial ships.<sup>6</sup>

A model published in February 2022 estimated that the real value of maritime cargo after the Covid-19 pandemic of 2020 and 2021 would steadily rise, and having risen in 2021 to \$20,175 billion, would reach \$21,038 billion in 2022 and would continue to rise. The

<sup>4</sup> China's Belt and Road Initiative is meant to connect Asia with Africa and Europe through a network of overland and maritime routes designed to promote regional integration, expand trade, and encourage the country's economic growth. President Xi Jinping, inspired by the Silk Road of the Han Dynasty of 2,000 years ago, gave the plan its name in 2013.

<sup>5</sup> United Nations Conference on Trade and Development UNCTAD, "[Review of Maritime Transport 2021](#)", United Nations, Geneva, 2021.

<sup>6</sup> Equasis, [The 2020 World Merchant Fleet Statistics from Equasis](#).

volume of cargo would also increase, reaching more than 20 billion tons within a decade. It can be assumed that maritime transport of such magnitude will require increased activity at ports all around the globe (Figure 5).

Table 1: Types of tonnage of ships in the global merchant marine<sup>7</sup>

World fleet by principal vessel type, 2020–2021 (thousand dead-weight tons and percentage)					
Principal types	2020		2021		Percentage change 2021 over 2020
Bulk carriers	879 725	42.47%	913 032	42.77%	3.79%
Oil tankers	601 342	29.03%	619 148	29.00%	2.96%
Container ships	274 973	13.27%	281 784	13.20%	2.48%
Other types of ships:	238 705	11.52%	243 922	11.43%	2.19%
Offshore supply	84 049	4.06%	84 094	3.94%	0.05%
Gas carriers	73 685	3.56%	77 455	3.63%	5.12%
Chemical tankers	47 480	2.29%	48 858	2.29%	2.90%
Other/not available	25 500	1.23%	25 407	1.19%	-0.36%
Ferries and passenger ships	7 992	0.39%	8 109	0.38%	1.46%
General cargo ships	76 893	3.71%	76 754	3.60%	-0.18%
World total	2 071 638		2 134 640		3.04%

Source: UNCTAD calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 100 tons and above; beginning-of-year figures.

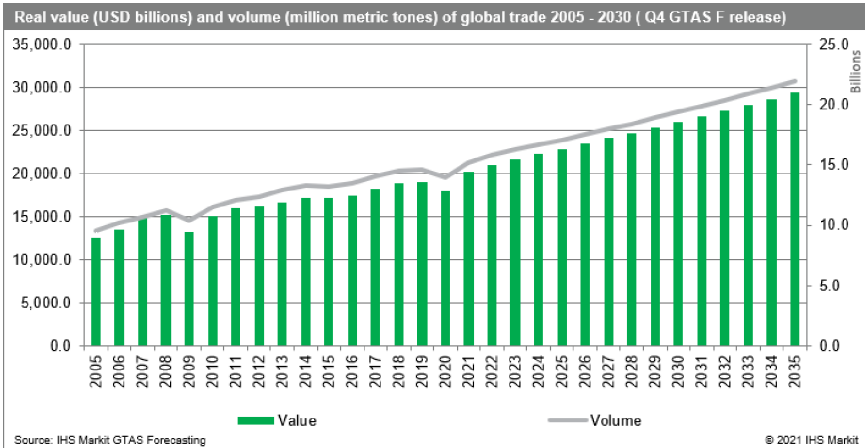


Figure 5: Increase in global maritime trade in monetary value and tonnage<sup>8</sup>

<sup>7</sup> UNCTAD, [Review of Maritime Transport 2021](#). Table 1.

<sup>8</sup> Tomasz Brodzicki, "[Global Trade Outlook 2022. High Global Trade Volume Growth in 2021 and Significant Moderation in 2022. Supply Chains Disruption is Likely to Continue in the First Half of 2022](#)", *S&P Global, Market Intelligence*, January 12, 2022.

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## Modern / Smart Ports

About 90 percent of global commerce is shipped by sea via merchant ships of all kinds. The demand for efficient ports and shipping lanes will only grow as the scope of maritime trade triples by 2050. It is obvious that the system of maritime transportation, ships, and ports is part of an economic mechanism that creates added value to the economies of nations that operate ports.<sup>9</sup>

A port is an area capable of providing harbor to many vessels and allowing continuous or periodic activity of loading and offloading goods and people. Ports may be highly important to a nation, serving as catalysts for economic development by enabling commerce and supporting the supply chain. Investments in ports have economic benefits, both direct and indirect. Ports may also have military importance.

Today, most ports (especially seaports) are equipped with special facilities and computerized systems to ease the flow of routine traffic and reduce the time any ship stays docked. Generally speaking, there are five types of ports: inland ports built on lakes or rivers, with or without a channel to sea; fishing ports; warm water ports, which have the operational advantage of not freezing over in the winter; dry ports, which are ground terminals located away from the seaport and connected to it by a network of ground transportation; and seaports, the most common, generally located in natural bays or behind artificial seawalls on the coast or at river estuaries.<sup>10</sup> The most significant ports in terms of the economy are those that also serve as cargo ports, classified by their specializing in types of cargo – container ports, oil and gas ports, and bulk ports – or mixed ports capable of serving different types of cargo.

A smart port is a digital port; it must be more attractive and innovative in a competitive environment, be better connected to logistics, industrial environments, and development resources. These are automatic ports using technologies with an emphasis on the maritime environment. They use smart data systems geared for innovation, including big data, AI, blockchain technologies, nonstop service, efficiency, automation, and green technologies. The need to develop and become "smart" is more vital now than ever, given the changing demands of global trade: ships are getting bigger, goods are moving faster, and geopolitical issues create new challenges for ports all over the world.<sup>11</sup>

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<sup>9</sup> OECD, [The Ocean, Ocean shipping and Shipbuilding](#).

<sup>10</sup> Soumyajit Dasgupta, "[What Are Different Types of Ports for Ships](#)", *Marine Insight*, April 26, 2022.

<sup>11</sup> Port Technology Team, "[What is a Smart Port?](#)", *Port Technologies*, April 14, 2021.



Figure 6: [A smart port](#)



Figure 7: [The importance of the use of smart technology in ports was made clear during the pandemic](#), Photo: Andy Li

Specialization in transporting containers has become a key factor in competition among ports. At times, the economic constraints of countries and other factors make it necessary to privatize ports or apply an PPP model – public-private partnership – to them. PPP models may be categorized into four broad groups in order of increased involvement on the part of the private sector: supply and management contracts, partnerships, private ownership, and franchising.<sup>12</sup>



Figure 8: [Singapore Port](#), 4th on the list of 10 smart ports in the world

## China's Shipping Strategy

Since the economic reforms in China and the institution of its "Open Door" policy (starting in 1978),<sup>13</sup> along with the global port privatization trend beginning in the 1990s, and China's

<sup>12</sup> *iRami*, "[Major Features of Modern Ports](#)", September 15, 2012.

<sup>13</sup> Guocang Huan, "China's Open Door Policy, 1978–1984", *Journal of International Affairs*, 39, no. 2, China in Transition (Winter 1986):1–18.

entry into the World Trade Organization (WTO) in the early 2000s, foreign investors have flocked to China's port sector, operated on the basis of the 2004 Chinese "Port Law" for joint ventures supported by the Chinese government. Thus began a process of mergers of government-owned Chinese companies, receiving financial support and political backing, such as the 2015 merger of the largest port management company in the world, the China Merchant Group (CMG), a shipping company founded in 1872, and the 2016 merger of the COSCO Group with China Shipping Group, which led to the creation of the third-largest shipping company in the world. The Chinese authorities set ambitious maritime strategic goals, both domestic and international, investing \$132 billion in international ports between 2010 and 2019 for 25 projects in 18 countries.<sup>14</sup> The outcome has been not just an expansion of ports, infrastructures, and service in China, but also cumulative experience that, with government support, has led to the expansion of other cooperative ventures at ports around the world.<sup>15</sup>

Two major factors apparently form the basis for China's buildup in maritime transportation (and also in other fields of the economy) and for its full or partial ownership of dozens of ports around the world. The first is the formulation of a new communist ideology, "socialism with Chinese characteristics," that combines China's unique history and culture with the nation's communist doctrine, and is a key component in China's economic, social, and security development. According to party propaganda, China's economic development is a source of profound admiration, the standard of living has improved dramatically, and the use of capitalist principles incorporated with a socialist foundation has brought China nothing but good. Similarly, in the realm of national pride, China has developed and advanced after "the century of humiliation."<sup>16</sup> The emphasis on the intention and ambition to return to a place of Chinese superiority was part of China's name from the year 1000 BCE until the 16th century, when the nation was called "the Middle Kingdom"<sup>17</sup> and was a world leader diplomatically, militarily, and economically.

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<sup>14</sup> Jude Blanchette, "[Hidden Harbors: China's State-backed Shipping Industry](#)", *CSIS*, July 8, 2020.

<sup>15</sup> K.X. Li, W. Zhang, S.L. Chen, and W. Huo, "[International Port Investment of Chinese Port-Related Companies](#)", *International Journal of Shipping and Transport Logistics*, 11, no. 5 (January 2019): 430.

<sup>16</sup> "The century of humiliation" is a historical term referring to the period of Western and Japanese intervention and imperialism in China and ranges from 1839 to 1949.

<sup>17</sup> At different times, China was called the "Middle Kingdom" or "Central Kingdom" and, in fact, in Chinese the name of the nation is Zhongguo, which is translated as "the Middle Kingdom." It is indicative of the country's supreme function as the center of civilization or even the world. With such self-confidence and collective sentiment, China was destined to be isolated. From the beginning of the year 1000 BCE, the members of the Zhou dynasty, not aware of high civilizations in the West, believed that their empire had conquered the middle of planet Earth and was surrounded by barbarians.

Like historically distant leaders, the Communist Party of China (CPC) of today also behaves as if China is at the center of the universe.

The second factor in China's maritime growth is the reliance of China's maritime policy shapers on the naval doctrines of Mahan and Corbett, both of whose writings have directly influenced the concept of China's military fleet and are an inseparable part of its policy of shipping and controlling ports all over the world (see below).



Figure 9: "[Socialism with Chinese characteristics](#)"

As early as 2017, President Xi, speaking about the BRI, said, "If you want to get rich, first build a road, but in coastal areas, if you want to get rich, you also need to build a port."<sup>18</sup> He also said that "Economic powers must be maritime powers and shipping powers."<sup>19</sup>

In previous articles, I have tried to clarify China's geostrategic intention as an economic policy and strategy rather than as an aspiration for hegemony or a military strategy.<sup>20</sup> For hundreds of years, China's security strategy was aimed at its long land borders with its neighbors. In the 1980s and 1990s, as China's industry grew, accompanied by an impressive increase in maritime commerce (imports and exports), China's grand strategy

<sup>18</sup> Isaac Kardon, "[China's Ports in Africa](#)", *NBR*, Special Report, no. 9:8. May 3, 2022.

<sup>19</sup> "[How Is China Influencing Global Maritime Connectivity?](#)", *China Power*, Retrieved September 17, 2022.

<sup>20</sup> Benni Ben Ari, "Strategies in the Indo-Pacific Region", in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021–2022* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2022), pp. 103–121; Benni Ben Ari, "Is U.S. Strategy on China's Maritime Buildup Correct?" in Ziv Rubinovitz (ed.), *The Geostrategic Series 2022* (Haifa: Chaikin Chair for Geostrategy and the Maritime Policy & Strategy Research Center, University of Haifa, 2023), pp. 12–17 (Hebrew).

shifted to "offshore balancing."<sup>21</sup> In my opinion, making China's maritime strategy part of the nation's grand strategy is a result of its population size and the CPC's policy that it must ensure that its 1.5 billion citizens are satisfied with the standard and quality of living in the country. A population of that size demands the of production<sup>22</sup> and import of massive quantities of food (China is the world's large food importer,<sup>23</sup> as well as a leading exporter of foodstuffs<sup>24</sup>) and a constant flow of raw goods to the industrial sector, including energy products – coal, oil, and gas – lacking in China (which is the world largest importer of oil,<sup>25</sup> as well as the largest importer and consumer of iron in the world).<sup>26</sup> Employment opportunities for so massive a population and the world first-place manufacturing capacity demand extensive export and import capabilities.<sup>27</sup> Such activities, undertaken on such a large scale, can be carried out only by sea transport; therefore, China must have a very large merchant fleet and a well-developed home port system. In seven years, the expansion of the merchant fleet's gross tonnage (GT) totaled 97.4 million: from 126.3 million GT at the end of 2014 to 223.7 million GT at the end of 2021. Almost half of the total expansion in that time involved bulk carriers, including ore carriers (47 percent); about one-quarter involved container ships (26 percent), followed by tankers (17 percent), and other types of vessels (10 percent).<sup>28</sup>

The rapid growth of China's economy on the world stage steps primarily from the constant growth in exports of the last few decades. Container ships transport more than 80 percent of international commerce, which is why China is implementing a plan for export-oriented economic growth. Along with this, the Chinese government is investing

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<sup>21</sup> "Offshore balancing" in strategy is a term used in the doctrine of international relationships that perceives multi-polarity – international relations controlled by force over many – as an opportunity rather than a threat. For more on China's strategy, see: Benni Ben Ari, "[The Cat Is out of the Bag: Geostrategy and Geopolitics in the South China Sea](#)," Maritime Policy & Strategy Research Center, University of Haifa, October 11, 2021 [Hebrew].

<sup>22</sup> K. Whiting, "[Food Security: This is How China Plans to Feed its 1.4 Billion People](#)", *World Economic Forum*, March 11, 2022.

<sup>23</sup> O. Wang, "[China Food Security: How's It Going and Why It Is Important](#)", *China Macro Economy*, November 29, 2000.

<sup>24</sup> T. Brodzicki, "[Agri-food Exports of China](#)", *S&P Global*, February 25, 2020.

<sup>25</sup> K. H. Wang, C. W. Su, "[Dose High Crude Oil Dependence Influence Chinese Military Expedition Decision Making?](#)", *Energy Strategy Reviews*, 35: 100653, May, 2021.

<sup>26</sup> Luo Guoping, Fan Ruohong, and Han Wei, "[China's Steel Industry at a Crossroads as Long Winter Looms](#)", *Nikkei Asia*, September 7, 2022.

<sup>27</sup> "[Top Manufacturing Countries in the World](#)", *Global Upside*, Global Manufacturing Output, China, – 28.7% United States, – 16.8% Japan, 7.5%, Retrieved December 12, 2022.

<sup>28</sup> "[Powerful Growth in the China-Owned Fleet](#)", *Hellenic Shipping News*, June 16, 2022.

in upgrading and strengthening the infrastructure of the country's ports, through which most of the nation's international commerce passes.<sup>29</sup> The Chinese companies building and operating infrastructures overseas are exposed to ever-increasing competition from other world powers. In fact, China is not alone in operating a port strategy, and, currently, a number of port operators from one country own and operate terminals in others. PSA (the Singapore Port Authority) operates terminals in 15 countries; the Danish Maersk Line has 76 ports in 41 countries; Switzerland's Mediterranean Shipping Company (MSC) operates 35 terminals in 22 countries; and DP World from Dubai runs 77 ports in 40 nations.<sup>30</sup>

China's defense experts applied Alfred Thayer Mahan's principles of naval strategy during the impressive development of the merchant fleet and later to the naval branch of the armed forces charged with maritime defense of China's coasts and littoral water, as Mahan's ideas suited China's growing strength and influence.<sup>31</sup> Later, the development of commercial sea routes to all corners of the globe led to a conceptual change and the adoption of Julian Corbett's naval strategy, which holds that naval strategy always derives from a nation's unique political ambitions and desires while taking into account its limitations and constraints.<sup>32</sup> According to Corbett, such a grand strategy requires an appropriate naval strategy that can link the use of naval power with the political objective of preventing the development of a negative balance of power in each and every region. In China's case, such a strategy necessarily involves achieving the objectives of being able to face other navies and threats, especially from the United States and its navy.<sup>33</sup> Mahan's doctrine may be summarized as focusing the navy on finding and destroying the adversary's navy in a decisive battle at sea (an offensive defense). In contrast, Corbett's theory may be summarized as the need to ensure command of the sea to deny freedom of action to one's adversary. A transition to Corbett's strategy also requires a well-

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<sup>29</sup> "[How the Ports are Helping China to Lead the Global Container Shipping Industry](#)", *The Cooperative*, February 2, 2022.

<sup>30</sup> W. Shepard, "[China's Seaport Shopping Spree: What China Is Winning by Buying Up the World's Ports](#)", *Forbes*, September 6, 2017.

<sup>31</sup> Alfred Thayer Mahan was considered "the guru" of U.S. naval power in the 19th century and the spiritual father of the modern U.S. Navy. His theories are not time-dependent, and Chinese experts refer to his writings again and again, urging their nation to construct a powerful navy.

<sup>32</sup> Corbett's main goal was to fill the lacunae in the British Royal Navy's doctrine by articulating the theories and principles of naval warfare. His strategies focused on the art of naval warfare and formulated the differences between warfare on land and at sea.

<sup>33</sup> Andrew Latham, "[Mahan, Corbett, and China's Maritime Grand Strategy](#)", *The Diplomat*, August 24, 2020.



developed navy to be a "blue-water navy"<sup>34</sup> equipped with suitable weapons capable of securing commercial maritime routes and operating at distant chokepoints<sup>35</sup> that have the potential to interfere with or even prevent free and secure shipping at sea.

## Major Ports and Maritime Commerce in China

Along its 14,500 km. long coastline, China operates 34 large open-sea ports and more than 2,000 smaller ports located along rivers and canals, all of which are active year-round. Thus, most large cities have a port of their own or are close to one.<sup>36</sup> After the economic reforms that followed the Cultural Revolution (post-1979) and as exports and imports increased, in particular after the announcement of the Belt and Road Initiative in 2013,<sup>37</sup> the field of maritime commerce and port construction has undergone considerable development. Today, China has the largest number of home ports of any country in the world, and of the ten largest ports in the world, seven are located in China (since 2009, the largest port in the world has been the Port of Shanghai).<sup>38</sup> China also controls more than 150 ports in 79 countries scattered across all five continents (a different source claims 63 nations;<sup>39</sup> a breakdown of Chinese ports in the world may be found below).

In the first quarter of 2022, China's foreign trade increased by 10.7 percent (compared to the previous year), for a value of CN¥9.42 trillion (\$1.48 trillion), maintaining a growth momentum for seven consecutive quarters and kicking off a stable year despite mounting challenges: the Russia-Ukraine crisis and local outbreaks of the Omicron strain of Covid-19.<sup>40</sup> Undoubtedly, a significant part of maritime trade growth is due to the recovery of maritime transport, which slowed during the pandemic, and due to the many efficient ports in China itself and the ports it controls throughout the world.

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<sup>34</sup> Navies with the ability to operate at great distances in the waters of all the oceans.

<sup>35</sup> A narrow strategic route providing transit to another region.

<sup>36</sup> [List of ports in China](#), *wikinone.com*, Retrieved July 20, 2022.

<sup>37</sup> Belt and Road Initiative, a development strategy that President Xi Jinping proposed, focused on connections and cooperation with other nations, especially between the People's Republic of China and other Eurasian nations, in the developed of commercial and industrial infrastructures.

<sup>38</sup> "[Top 9 Ports in China](#)", *ShipHub*, Retrieved July 9, 2022.

<sup>39</sup> Matthew Rochat, "[China's Growing Dominance in Maritime Shipping](#)", *The Diplomat*, December 18, 2021.

<sup>40</sup> GT staff reporters, "[China's Foreign Trade Mirrors Stable Start in Q1 Despite Omicron Outbreak, Ukraine Crisis](#)", *Global Times*, April 13, 2022.



Figure 10: Sea ports in China



Figure 11: Volume of international commerce shipping by sea in China in the first quarter of 2022

## China's Shipping Policy

China's merchant marine grew by an average of 8.5–14.5 percent between 2015 and 2020. Over the last decade, the capacity of China's merchant fleet has more than doubled (at the end of 2011, the total GT was 106 million; at the end of 2021, the GT had grown to 223.7 million). A fair estimate puts the number of Chinese merchant marine vessels of all types at more than 9,000. Expanding the fleet of Chinese-owned bulk carriers, tankers, container ships, gas carriers, and other types has made it possible for China to increase maritime imports and exports and reduce its dependence on foreign-owned ships. These trends are the result of the implementation of a national maritime shipping policy that appears in various economic programs of the PCP. Thus, the involvement of nationally-owned ships has also grown in maritime trade routes in which China is neither an importer nor an exporter. In fact, today China owns about one-seventh of all commercial ships in the world.<sup>41</sup>



Figure 12: [Container ships belonging to COSCO](#)

The Chinese merchant navy has also been of military-strategic importance for some time. As early as 2015, when China announced its shift of maritime military strategy from "defense in the nation's littoral waters" to an incorporation of "the open sea" in the navy's missions,<sup>42</sup> the state approved and published guidelines for shipyards building merchant navy ships entitled "The Technical Standards for New Civilian Ships to Implement National Defense Requirements." This was done to ensure that the ships – container ships, roll-on-roll-off carriers (i.e., designed for wheeled cargo, such as cars, buses, etc.), general cargo, fuel tankers, and bulk carriers<sup>43</sup> – could also be used to transport soldiers, military

<sup>41</sup> "[Powerful Growth in the China-owned Fleet](#)", *Hellenic Shipping News*, June 16, 2022.

<sup>42</sup> Himanil Raina, "[China's Military Strategy White Paper 2015: Far Seas Operations and the Indian Ocean Region](#)", *CIMSEC*, July 1, 2015.

<sup>43</sup> Conor M. Kennedy, "[Civil Transport in PLA Power Projection](#)". *China Maritime Report No. 4*, U. S. Naval War College, December 2019.

equipment, armored combat vehicles, and various weapons systems.<sup>44</sup> In 2016, the Chinese government passed the "National Defense Transportation Law," updated in 2021, which determines that every government-owned organization is obligated to support security issues even outside of China, stressing that infrastructure projects (including ports) must take into account and realize military requirements.<sup>45</sup> Thus, the merchant navy is an integral part of China's strategic maritime capabilities. At the same time, the Chinese navy has also developed considerably; today, it is larger than the U.S. Navy in terms of the number of vessels.<sup>46</sup> Nonetheless, the modern Chinese navy has never fought a battle at sea, and even in its early history, it never won a serious naval battle. The construction of a modern navy seems justified if its main function is to secure the coasts and shipping lanes for commerce and to ensure that the nation's economy, so dependent on maritime trade, is never threatened by hostile parties. But based on the types of vessels included – aircraft carriers, nuclear subs, and armored vehicle and troop carriers – it seems that China also wants to project a maritime presence as a blue-water fleet and to make it possible to secure long-range shipping routes.

In addition to its standing in terms of scope of maritime trade (some 15 percent of all maritime trade is Chinese), China's investment in maritime technologies, not just port construction, is also steadily on the rise. China is the world's leader in the manufacture of port equipment and machines. It manufactures 96 percent of all containers in the world, 100 percent of refrigerated containers, and 80 percent of cranes for on- and offloading ships (especially container cranes), and in 2020, Chinese ship-builders received 48 percent of the world's orders for the construction of new ships.<sup>47</sup> In terms of orders, China leads the world in the construction of container ships and operates the third-largest shipping company in the world, the China Ocean Shipping Company (COSCO), which has been active since 1961 as a government-owned company. China's exports by maritime shipping contributes 39.18 percent to China's GDP. China's system of ports, which operate in all seasons, moving cargo of 242 million TEU (twenty equipment units), and its shipping lanes

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<sup>44</sup> Franz-Stefan Gady, "[China Prepares Its 172,000 Civilian Ships for War](#)". *The Diplomat*, June 23, 2015.

<sup>45</sup> Ben Lowsen, "[China's Updated National Defense Law: Going for Broke](#)", *China Brier*, 21, no. 4 (February 26, 2021), The Jadestone Foundation.

<sup>46</sup> David Axe, "[Yes, The Chinese Navy Has More Ships Than The U.S. Navy. But It's Got Far Fewer Missiles](#)", *Forbes*, November 10, 2021. A comparison between U.S. Navy capabilities and those of China in terms of attack missiles serves as a good demonstration. The Chinese Navy has 355 forward line battleships minimally of a Corvette size and more than 400 if one also counts small coastal missile boats, while the U.S. Navy has only 305 forward line battleships.

<sup>47</sup> "[China strives For Global Dominance Through Seaport Control](#)", *The Print*, May 8, 2022.

are the key factors in the nation's success in the field.<sup>48</sup> Maritime transportation plays a key role in China's economic strategy and the policy of China's Communist Part.

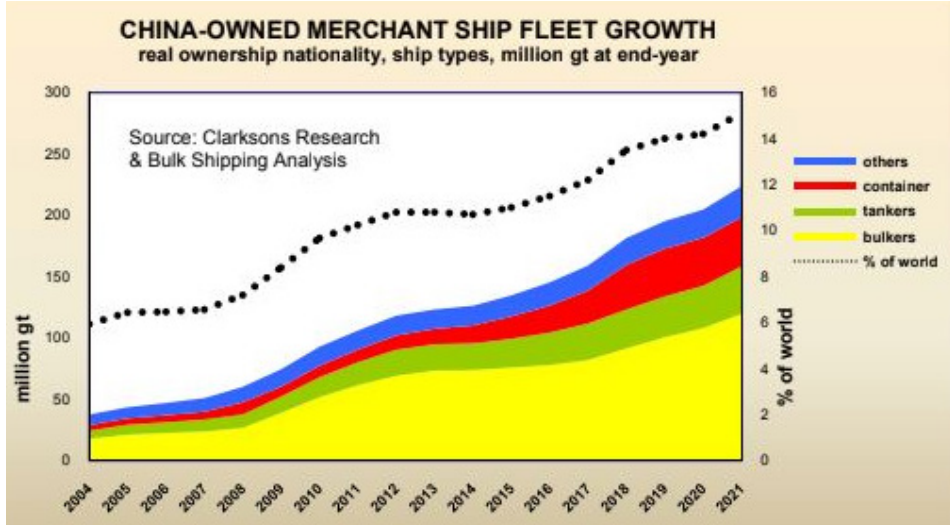


Figure 13: Growth of China's merchant marine, 2004 to 2021

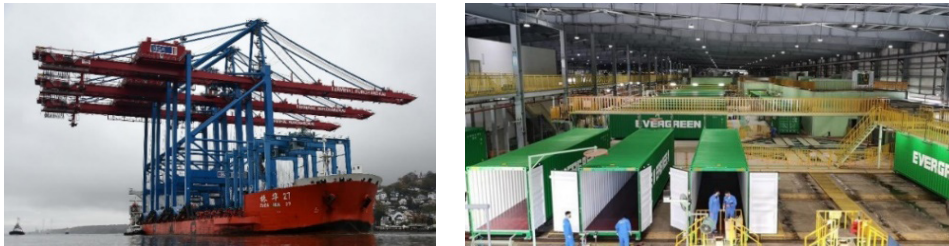


Figure 14: [Transit of container cranes from China to the port in Hamburg and the manufacturing of containers in China](#)

China's high performance in the Liner Shipping Connectivity Index (LSCI) is mainly the result of the nation's ability to handle a high output of container transportation.<sup>49</sup> China

<sup>48</sup> "[How dominant is China in the Container Port Business?](#)", *Zeymarine*, April 14, 2022.

<sup>49</sup> The Liner Shipping Connectivity Index examines the extent to which nations are connected to the global shipping networks. The index is computerized by the UNCTAD (the United Nations Conference on Trade and Development) on the basis of five parameters of maritime traffic: the number of ships, their carrying capacity, the maximal size of the vessels, the number of services, and the number of companies holding container ships at the nation's ports. "[Maritime Connectivity: Countries Vie for Positions](#)", *UNCTAD*, July 17, 2019.

invests heavily in improving its port infrastructures and in connecting them with the international traffic routes of the leading shipping companies. Moreover, many of China's ports are ranked among the most connected and efficient in the world.<sup>50</sup>

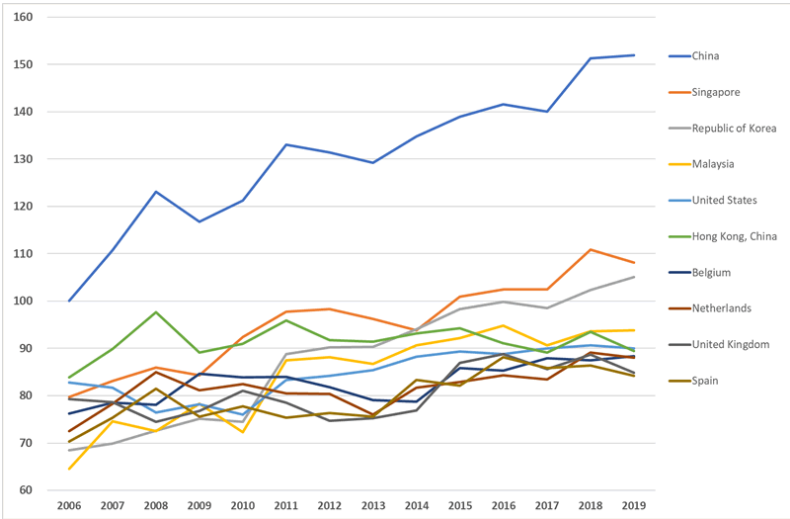


Figure 15: [LSCI 2006 to 2019](#)  
 (Source: UNCTAD, based on data provided by MDS Transmodal)

To realize its commercial maritime strategy of having the largest merchant marine in the world<sup>51</sup> to ensure its import and export ability based on China's existential and economic requirements at any time, China must be involved in and control and manage a large number of ports all over the world. In this way, it can ensure the ability to on- and offload goods and raw materials, including energy (coal, oil, and gas), so that the enormous merchant marine can function without limitations, even in economic and political crises. As of 2022, China had about 150 ports and cargo terminals, in particular container ports/ terminals (see Figures 16 and 17).<sup>52</sup>

<sup>50</sup> Ibid.

<sup>51</sup> In 2021, Greece held the largest share of the world's merchant marine, some 17.6 percent. China was ranked second with an 11.6 percent share. At the beginning of 2020, the world's total merchant marine comprised some 55,000 ships. [Number of Merchant Ships by Type 2022](#), Retrieved November 29, 2022.

<sup>52</sup> Most of the numerical data about China's involvement in ports around the globe are based on diverse sources, and offer different number about the total of Chinese ports around the world. Some of China's activity in ports is reflected by dedicated trade agreements as part of the Belt and Road Initiative. Although there are no ownership or partnership relations, in terms of involvement in ports around the world, the number is much higher than 150.

Guided by government policy, Chinese companies are investing in international ports strategically located along the world's leading import and export shipping routes (SLOC, "sea lanes of communication"), including those linking China with raw materials, energy, and markets critical to China's economy. Investments in ports are made along three maritime trade routes known as "the blue economic passages." The main one goes from China through the Indo-Pacific region, Africa, and the Mediterranean, to Europe. The second one goes to the southern part of the Pacific Ocean and Australia, while the third is meant to connect China with Europe through an Arctic passage in the future.<sup>53</sup> Some of the ports are located at chokepoints that are important for maritime routes to and from China. The Chinese government has not issued official data on global ports with Chinese ownership or involvement.<sup>54</sup> The data I gathered using maps, articles, and open-source information show that China is apparently involved in more than 150 ports, terminals, and platforms in various ownership arrangements in 79 countries.

More than 80 percent of the ports and terminals in which China is involved internationally are controlled by three large Chinese companies that operate ports and shipping lines: the above-mentioned COSCO, the China Merchants Group (CMG), and CK Hutchison Holdings. The first two are government-owned, while the third is a privately owned company in Hong Kong. The rest of the companies linked to ownership of ports are in various ways connected to or supported by the Chinese government, despite ostensibly being privately owned.



Figure 16: Nations here China has invested in and is involved in major ports<sup>55</sup>

<sup>53</sup> "[China's expanding investment in global ports](#)", *Economist Intelligence*, October 11, 2017.

<sup>54</sup> John Xie, "[China's Global Network of Shipping Ports Reveal Beijing's Strategy](#)", *VOA News*, September 13, 2021.

<sup>55</sup> *Ibid.*

The list of countries in which China is involved in or owns ports, cargo terminals, and platforms, or with which it has special trade agreements regarding ports (including within the framework of the maritime BRI and its expansion) and their numbers: Algeria (3), Angola (3), Argentina, Australia (4), Bahamas (3), Bangladesh, Belgium (4), Brazil, Cambodia, Cameroon, Canada, Cape Verde, Chile (2), Congo, Cuba, Djibouti (4, including one military port), Egypt (4), El Salvador, Equatorial Guinea, Eritrea, France (5), Gabon, Gambia, Germany, Ghana (3), Guinea Bissau, Greece (3), Guinea (2), Indonesia, Iraq, Israel (1: Haifa), Italy (2), Ivory Coast, Jamaica, Kenya (2), Korea (4) Madagascar (2), Malasia, Malta, Mauritania, Mexico (8), Morocco (2), Mozambique, Myanmar (2), Namibia, Netherlands (11), Nigeria (6); Oman, Pakistan (3), Panama (5), Papua New Guinea, Peru, Poland, Russia, Sao Tome, Saudi Arabia, Senegal, Sierra Leone (3), Singapore (2), Solomon Islands (Tulagi), South Africa, Spain (3), Sri Lanka (2), Sudan, Sweden, Taiwan (3), Tanzania (4), Thailand (3), Togo, Trinidad and Tobago, Tunisia, Turkey, Ukraine, United Arab Emirates (4), United Kingdom (5); United States (5: Los Angeles, Houston, Miami, Seattle, Long Beach), Uruguay, Vietnam (3), and Zambia.<sup>56</sup>

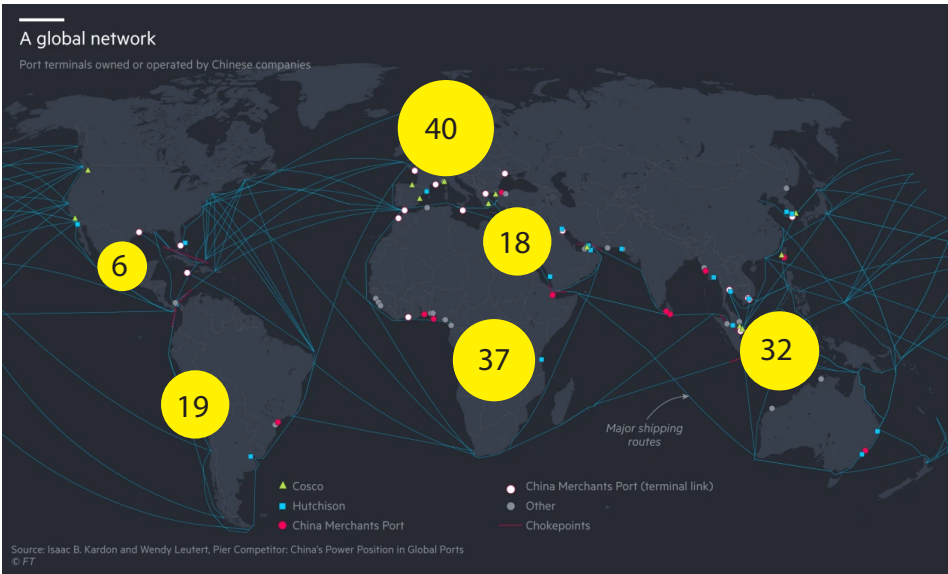


Figure 17: 152 ports where China is active around the world<sup>57</sup>

<sup>56</sup> The identification of countries and ports based on a survey of maps and articles. The majority of the list of ports is based on Ehud Gonen, "Nations' Responses to Chinese Investments in Seaports" (not yet published), University of Haifa, 2022.

<sup>57</sup> Source of base map: "[China Denies Building Naval Bases but Fear of its Military Reach Grows](#)", *Public News Times*, June 19, 2022.





Figure 18: [Chinese ports in Europe and in the Indo-Pacific region](#)

Since 2002, China has shown interest in developing some 150 transportation infrastructure projects in Latin America and the Caribbean. Chinese construction companies work everywhere, but are especially focused on Bolivia, Brazil, and Jamaica. China has been particularly successful in acquiring and building port facilities that are considered the most advanced in the world.<sup>58</sup>



Figure 19: [Chinese infrastructure and port projects in the Caribbean and South America](#)



Figure 20: Chinese ports in Africa<sup>59</sup>

<sup>58</sup> Margaret Myers, "[China's Transport Infrastructure Investment in LAC: Five Things to Know](#)", *The Dialogue*, November 13, 2018.

<sup>59</sup> Chiponda Chimbela, "[Making Chinese Investment in African Ports Work](#)", *DW*, June 21, 2019.

In 2021, the *Naval War College Review* published a study, which was presented to the U.S. Congress, on China's involvement in commercial ports around the globe. Some were defined as having the ability to provide logistical and intelligence support as well as military and diplomatic activity on military vessels (dual-use functions as strategic strongpoints). The study notes the existence of 95 Chinese-owned or -operated ports, and hundreds more with such dedicated equipment and other activities (other sources in this article and regional maps note an even larger number of ports). Chinese government companies are involved in 35 ports. All Chinese companies have full ownership of at least one terminal at 56 ports and 100 percent ownership in 23 ports. Of the 77 ports, 81 percent are controlled by the three large companies. CK Hutchinson has majority ownership of 36 out of 38 (20 of which are 100 percent owned); COSCO has majority ownership of 7 out of 19 ports; and CMP has majority ownership of 3 ports and minority ownership of 29.<sup>60</sup>

The study notes that worldwide, 31 ports are located along the Atlantic Ocean, 25 along the Indian Ocean, 21 along the Pacific Ocean, and 16 along the Mediterranean and in North Africa. Regionally: 18 ports are on the South and North American continents, 18 in South and Southeast Asia, and 9 in Africa. Of all the ports, 50 are at chokepoints (10 in the English Channel, 9 in the Strait of Malacca, 9 near the Strait of Hormuz, 6 near the Suez Canal, and 4 each in the following areas: the Panama Canal, Gibraltar, and the Dardanelles and Bosphorus).<sup>61</sup>

## Ownership Modalities

Chinese companies, whether government owned or privately owned with government support, fully or partly control ports around the globe include: China Merchants Port Holdings Company – CMPHC, COSCO (CSP), Hutchison Ports Holding – HPH, Hutchison / TMA Logistics, Terminal Link, LandBridge – DARWIN PORT, OOCL, China Overseas Port Holding Company, Shanghai, Gorgeous, SIPG, and Qingdao Port International Development. There are four major methods whereby Chinese companies gain full or partial control of ports around the world: acquisitions, joint ventures, franchises, and BOT (build, operate, transfer). Some of the projects may be classified as public-private partnerships (PPP).

Between 2004 and 2017, the government-owned COSCO was involved in investments ranging from 12.5 to 100 percent in 12 foreign ports, mostly by acquiring ownership shares: in Belgium (two ports owned at 100 and 25 percent respectively); Spain (51

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<sup>60</sup> Isaac Kardon, "[Research & Debate, Pier Competitor: Testimony on China Global Ports](#)", *Naval War College Review*, 74, no. 1 (2021): 128–152.

<sup>61</sup> Ibid.

percent ownership); Italy (40 percent); UAE (90 percent); the Netherlands (two ports owned at 47.5 and 12.5 respectively); Greece (100 percent); Singapore (49 percent); South Korea (20 percent); Turkey (26 percent); United States (33.33 percent); and Egypt (20 percent). In 2022, after disagreements in the German government, an agreement was approved according to which the company acquired 24.9 percent of the control of the Port of Hamburg but without the ability to affect strategic and management issues.<sup>62</sup>

Between 2008 and 2017, CMP, the second government company, invested in 13 foreign ports using various ownership methods: in Brazil (90 percent control), Sri Lanka (85 percent), Turkey (26 percent), Myanmar (BOT), Australia (50 percent), and Djibouti (23.5 percent). In joint ventures with the French company Terminal Link, CMP is involved in 14 ports in 8 countries with 49 percent ownership, and in Togo (50 percent), Sri Lanka (85 percent), Nigeria (28.5 percent), and Vietnam (49 percent).

Table 2: Ownership modalities, control of international ports<sup>63</sup>

Modality Types	Main Features	Risk Transfers
Acquisition	<ul style="list-style-type: none"> <li>A company acquires shares from either private entities or state-owned enterprises (SOEs) in host countries;</li> <li>SOEs can be regarded as a PPP partly or wholly, usually called a partial divestiture or total divestiture.</li> </ul>	The company is responsible for all aspects; hence there are risks in infrastructure provision.
Joint venture	<ul style="list-style-type: none"> <li>A jointly owned and independent company is set up by two or more organizations sharing resources, costs, expertise, and profits.</li> </ul>	All risks are shared between the joint venture partners.
Concession	<ul style="list-style-type: none"> <li>A brownfield lease, franchise or affermage.</li> <li>A government transfers operating rights to private enterprise, but still retains the ultimate ownership of assets.</li> </ul>	No equity risk is borne by the private company, with additional exposure of maintaining certain technical standard at the facility.
BOT	<ul style="list-style-type: none"> <li>A private company builds the facility and operates the facility through a concession.</li> <li>At the end of the concession, the facility is transferred to the government.</li> </ul>	Private company assumes equity, construction risk and other commercial risks.

<sup>62</sup> Arne Delfs and Josefine Fokuhl, "[Hamburg Port to Sell Stake to China's COSCO After Scholz's Push](#)", *Bloomberg*, October 26, 2022.

<sup>63</sup> Shuiwang Zhang, Yu Mei, Qiang Bao, and Lingzhi Shao, "[International Port Investment of Chinese Port-Related Companies](#)", *International Journal of Shipping and Transport Logistics*, 11, no. 5 (2019): 445, Table 7. Four major modalities of international port investments.



Figure 21: The Chinese Yuan Rui Yang VLCC (very large crude carrier), launched in 2022, with a tonnage of 317,800 GT<sup>64</sup>



Figure 22: Iron ore bulk carrier, Chinese merchant marine (Hong Kong)<sup>65</sup>

<sup>64</sup> The VLCC, exclusively designed and constructed by CSSC (the China State Shipping Corporation), measured 333 meters long and 60 meters wide. It runs on LNG (liquefied natural gas) as its main fuel and is also equipped with a dual-fuel main engine of LNG, generator, and boiler. When propelled by gas, the carrier can sail a distance of 12,000 nautical miles, equivalent to a round-trip from Shanghai Port to Dubai Port with one LNG fueling. In its dual-fuel state, the carrier can sail up to 24,000 nautical miles. "[China Delivers World's First Super-Large LNG Dual-Fuel Oil Tanker](#)", *CGTN*, March 2, 2022.

<sup>65</sup> The *Pacific Flourish*, sailing under the Hong Kong flag, was built in China in 2018. A second generation Valemax-class bulk carrier, it belongs to the China Merchants Group, established in 1872, which owns a large fleet of ships of various types and whose routes crisscross the globe. The ship is 362 meters long by 65 meters wide, with a capacity of 203,000 tons and a GT of 399,000. The ship has a 32,400-HP engine and can reach a speed of 14 knots and above. "[10 Largest Bulk Cargo Ship in the World – 2022](#)", *Daily Logistic*, July 16, 2022.

In some ownership modalities between China and other nations for the construction, development, or management of ports, China finances the project or grants a loan to the other nations, after which it "takes advantage" of the other nations' difficulty in returning the debt to Chinese banks. The term "debt trap diplomacy" is in common use, attributing to China a policy geared at maneuvering countries (usually poor and undeveloped nations) into a trap that will force them to accept Chinese loans in exchange for strategically important physical assets given as guarantees, or the transfer of large shares of control of infrastructure projects. China faces criticism for its lending methods to poor countries and has been accused of leaving them struggling for a way to repay their debts and exposing them to pressure from Beijing. China's response was, "There is not a single nation that has been caught in a so-called 'debt trap' as a result of loans from China."<sup>66</sup> The best-known case is that of Hambantota International Port in Sri Lanka.<sup>67</sup> Various studies rule out these cases being the result of deliberate policy.<sup>68</sup>

Concurrently with the development of major ports in China and an economic policy of construction, acquisition, or leasing of ports around the world, China, to all intents and purposes, has also been implementing a military/security policy in the Indo-Pacific region of seizing control of the South China Sea, China's port entry zone. China has been building artificial islands in the South China Sea, on which they have been building military infrastructures, including: runways for fighter jets; and detection, command, and control systems; as well as aggressive posturing on the part of its coast guard, naval militias, and navy.<sup>69</sup>

The three major areas where China has considerable involvement in ports are the Indo-Pacific region, Africa, and Europe. In recent years, China has been expanding its port activities in South and Central America and the Pacific Ocean. Despite China's denial, attempts at involvement in Solomon Islands ports (including a military port), in southern Argentina (Strait of Magellan), and even the Panama Canal have aroused concern in the U.S. administration about China's political and strategic expansion.<sup>70</sup>

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<sup>66</sup> Kai Wang, "[China: Is it Burdening Poor Countries with Unsustainable Debt](#)", *BBC News*, January 6, 2022.

<sup>67</sup> Wale Ajetunmob, "[Like Zambia, Sri Lanka also Handed Over Port to China to Pay Off Debt](#)", *African Liberty*, September 10, 2018.

<sup>68</sup> Mark Leon Goldberg, "[Chinese 'Debt Trap Diplomacy' is a Myth](#)", *UN Dispatch*, May 19, 2022.

<sup>69</sup> For more on the South China Sea, see Ben Ari, "Strategies in the Indo-Pacific Region", pp. 89–104; "Is U.S. Strategy on China's Maritime Buildup Correct?", pp. 12–17.

<sup>70</sup> K. Moriyasu, "[Strategic Chokepoints: The New U.S.-China Battlegrounds](#)", *Nikkei Asia*, April 27, 2022.

## China's "String of Pearls"<sup>71</sup>

China started to realize its strategy of building civilian and military ports in the Indian Ocean in 2004,<sup>72</sup> and began to buy European ports for the sake of maritime commerce in 2008.<sup>73</sup> China's "String of Pearls" refers to the nation's intention to set up a network of ports in the Indian Ocean domain, surrounding India and the Indo-Pacific region as the geopolitical realization of China's aims in that part of the world. Each "pearl" refers to a port with military capabilities in a sequence along the maritime transportation routes in the region. China's presence in the Indian Ocean and Bay of Bengal is a clear threat to the security of India from the sea. India responded to the threat with the development of its own "East Policy."<sup>74</sup> The military-strategic significance is accompanied by an economic price tag, because the "String of Pearls" is an inseparable part of China's Belt and Road Initiative.

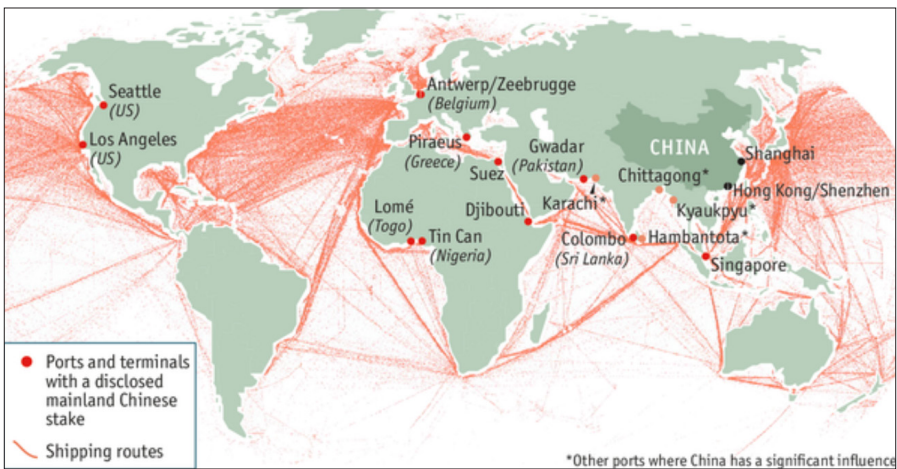


Figure 23: The "String of Pearls" early on (2013)

China's major achievements in the Indo-Pacific domain are a 99-year lease and expansion of Hambantota International Port in Sri Lanka; a 40-year rental agreement at Gwadar Port

<sup>71</sup> Aarna Tiwari, "[China's String of Pearls UPSC: About, Impact on India and Measures Undertaken](#)", *BYJUS*, October 12, 2022.

<sup>72</sup> Virginia Marantidoy, "[Revisiting China's 'String of Pearls' Strategy Places 'With Chinese Characteristics' and their Security Implications](#)", *Issues & Insights*, 14, no. 7. (June 2014).

<sup>73</sup> Jérôme de Ricqlès, "[European Ports: China Sets Up its Commercial 'Factories'](#)", *UPPLYYS*, October 28, 2019.

<sup>74</sup> [China's String of Pearls: Notes for UPSC International Relations](#), *BYJUS*, Retrieved December 13, 2022.

in Pakistan; and the investment of \$350 million in the Port of Djibouti, which is also China's first overseas military base, located near the central strategic chokepoint between the Gulf of Aden and the Red Sea.

In the decade between 2009 and 2019, China emerged as an economic superpower of strategic proportions in the Mediterranean and southeast Europe, a region where large powers have vied for influence for hundreds of years. Having established its supremacy at the Greek port of Piraeus, China has implemented a sweeping program of "Port Diplomacy" covering more than two dozen ports along the Mediterranean coastline – Europe, the Middle East, and North Africa. At the same time, China prepared plans for active involvement in central and eastern European nations, the reason why the "17+1 forum" (now called the Cooperation between China and Central and Eastern European Countries – China-CEEC) in Europe is linked to the BRI via Piraeus, the gate to the Middle East.<sup>75</sup> Based on these developments, China is well placed to expand its power in the Mediterranean in the future. Cargos intended for European destination are offloaded at the modernized port of Piraeus and transported by rail across the continent in a much shorter time.<sup>76</sup>

This strategy is the foundation of China's expansion in ports and shipping lines, with the added bonus of, at least in part, using the ports for military purposes. Having established itself in ports over several decades, Liam Fox, former U.K. Defence Secretary, observed, "Some of these (ports) are at key locations for maritime trade—which also means energy trade—giving Beijing strategic dominance without having to deploy a single soldier, ship or weapon."<sup>77</sup>

## Ports in Africa

Africa is rich in minerals needed in various industries and produces a bounty of agricultural products, while having a growing consumer market. China has therefore shown economic and political interest in the continent for decades, taking advantage of the lack of modern

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<sup>75</sup> The "17+1 forum" is a setting for cooperation between China and 17 central eastern European countries established in 2012 in Budapest to expand China's BRI. Of the 17, 12 are EU members and five are from the Balkans: Albanian, Bulgaria, Bosnia and Herzegovina, Croatia, the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, and Slovenia. Pritish Gupta, "[The '17+1 Initiative': Is China Losing its Charm in Central and Eastern Europe?](#)", *ORF*, September 18, 2020.

<sup>76</sup> Shin Watanabe, "[China Drops \\$11bn Anchors to Expand Maritime Silk Road](#)", *Nikkei Asia*, January 5, 2020.

<sup>77</sup> Antonia Filmer, "[China Expanding its Ports Worldwide](#)", *Sunday Guardian*, January 1, 2022.

ports there to invest in construction and upgrades intended to provide solutions for Africa's increasing scope of imports and exports.<sup>78</sup>

Consequently, since 2009, China has been the largest bilateral trade partner with many African countries and has provided expert solutions, including budgets, for the rising demand for modern ports, transportation infrastructures, and industrial installations. Such ports, especially in western Africa on the Atlantic Ocean (Figure 20), provide a firm foundation for China's economy and a tool for wielding political and diplomatic influence on the continent. The rise in piracy at sea in western Africa could ostensibly provide a legal justification for Chinese military activity in the region.<sup>79</sup> The Chinese are also building dual-purpose – civilian and military – sites for possible future use: not just for commerce with African markets, but also to promote broader foreign relations objectives, especially with regard to U.S. interests in the region.<sup>80</sup> However, the concern is that these investments might prove a risk should China try to control or limit port access to competing companies or companies with different priorities. Nonetheless, African nations will still profit if they can reduce the risks of that occurring.<sup>81</sup>

Still, China is not immune to local politics in Africa. One of the most ambitious projects on the continent is now on hold: Bagamoyo Port in Tanzania was supposed to have become the largest ever Chinese-built and operated port on the continent, but the current government does not agree with the terms of the \$10 billion project agreed upon by the previous government with Beijing. Tanzanian official sources now say the deal is not commercially worthwhile for the country.<sup>82</sup>

## Ports in Europe

China has been involved in port operations across Europe since 1982 and is currently active in 40 ports through some of the leading Chinese companies. The Port of Hamburg is a leading example. COSCO's attempt to acquire 35 percent of the port's shares was blocked in October 2022, and it had to settle for 24.9 percent due to objections from various

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<sup>78</sup> Joel Gehrke, "['They Want to Become a Superpower': African Port Links Could Make Chinese Access to Atlantic Inevitable](#)", *Washington Examiner*, December 14, 2021.

<sup>79</sup> Carlota Ahrens Teixeira and Jaime Nogueira Pinto. "[Maritime Piracy in the Gulf of Guinea](#)", *GIS*, March 28, 2022.

<sup>80</sup> Eric A. Miller, "[More Chinese Military Bases in Africa: A Question of When, Not If](#)", *Foreign Policy*, August 16, 2022.

<sup>81</sup> Margaret Myers, "[China's Transport Infrastructure Investment in LAC: Five Things to Know](#)", *The Dialogue*, November 13, 2018.

<sup>82</sup> Prachi Mittal, "[Falling Apart – A Story of the Tanzanian Bagamoyo Port Project](#)", *ORF*, September 15, 2020.



actors in Germany. There was political opposition to the move not only for economic but also political reasons. The smaller share of the terminal was agreed upon after the Germans were "burned" by their dependence on Russian gas. The Port of Hamburg is the eastern-most port of the North Sea, making it ideal for eastern Europe. As a global center serving overseas nations, central and eastern Europe, and the entire Baltic region, Hamburg enjoys a central geographical location, and China sees gaining ownership in this port as an important economic move.<sup>83</sup> For years, China has tried to acquire and develop Lithuania's Port of Klaipeda, but its efforts have yet to succeed. According to the Lithuanian president and other high-ranking officials, a Chinese foothold would represent a threat to the country's national security and to NATO.<sup>84</sup> Proposals for further expansions of the Port of Piraeus (to increase China's influence) have been similarly rejected.<sup>85</sup>

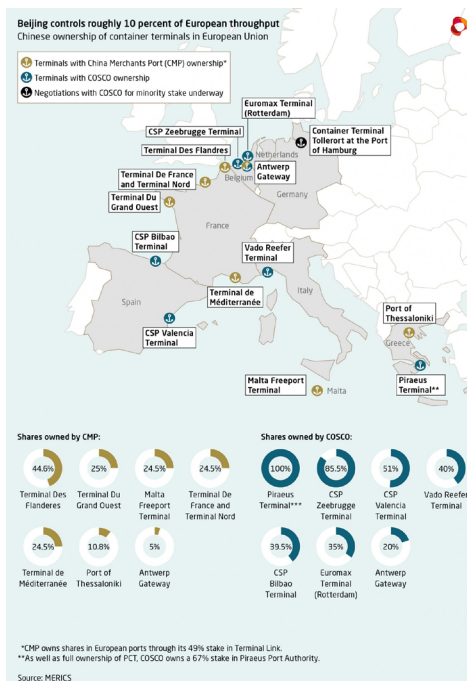


Figure 24: China's control of some 10 percent of maritime commerce in Europe<sup>86</sup>

- <sup>83</sup> Andreas Rinke and Sarah Marsh, "[German Coalition Divided Over Chinese Bid for Hamburg Port Terminal](#)", *Reuters*, September 14, 2022.
- <sup>84</sup> "[Lithuania Puts Off Deep-Water Port Project Eyed by China 'For at Least a Decade'](#)", *LRT News*, April 2, 2021.
- <sup>85</sup> Kardon, *Pier Competitor*, 2021.
- <sup>86</sup> Jacob Mardel and Giovanni Giamello, "[COSCO Takes Stake in Hamburg Port Terminal](#)", *MERICS*, September 30, 2021.

China's strategy for controlling maritime transportation in Europe is also reflected in its involvement in the Port of Trieste, Italy, which is of utmost strategic importance to China, because it connects the Mediterranean with landlocked nations that represent potential markets – Austria, the Czech Republic, Hungary, Serbia, and Slovakia<sup>87</sup> – that can contribute to the expansion of the Maritime Silk Road (MSRI).<sup>88</sup>

## Ports in North, Central, and South America

Chinese government-owned companies own terminals in five U.S. ports. COSCO entered into joint ventures in Long Beach, Los Angeles, and Seattle, and CMPort is a minority shareholder in French-owned terminals in Miami and Houston. It would seem that investments in Chinese ports in the United States is motivated by pure commercial interests. In Canada, China is involved in the Port of Quebec, and at the time of this writing, a deal for Hutchinson to build a huge container terminal in Quebec has not yet been approved.<sup>89</sup>

As part of the strategy to expand the BRI and increase maritime commerce, shipping lanes to South America in the Atlantic and Pacific are becoming more important than ever. Chinese companies are building and operating ports and platforms, especially for energy shipping, in Central and South America. These activities, especially in the Caribbean, rang alarm bells in the United States during the Trump administration. Continued Chinese construction in Peru and Brazil will make it possible to realize a shared Brazilian-Peruvian dream to connect their respective Atlantic and Pacific coastlines, and China can make the dream come true with economic benefits.<sup>90</sup> This would then provide Chinese shipping with an overland link between the Atlantic and Pacific Oceans.<sup>91</sup>

## Chinese Ports: Only Commercial or Also Military?

Chinese ports around the globe are located along international shipping lanes that are mostly geared to commercial rather than "offensive" use,<sup>92</sup> but it seems obvious that

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<sup>87</sup> Nadia Helm, "[China's Influence and Operating of the Main European Ports](#)", *Modern Diplomacy*, November 10, 2021.

<sup>88</sup> Jean-Marc F. Blanchard, "[China's Maritime Silk Road Initiative \(MSRI\) and Southeast Asia: A Chinese 'pond' not 'lake' in the Works](#)", *Journal of Contemporary China*, 27, no. 111 (2017): 329–343.

<sup>89</sup> Léonce Naud, "[China Controlling \(for 60 years\) the Gateway to the Great Lakes St. Lawrence Seaway System?](#)", Québec.

<sup>90</sup> "[Brazil, Peru and China and the Inter-oceanic Dream](#)", *Dialogo Chino*, February 5, 2015.

<sup>91</sup> Milton Leal, "[A Chinese Train Could Link South America's Atlantic and Pacific Coasts by Rail for the First Time](#)", *China File*, September 15, 2016.

<sup>92</sup> "[The New Masters and Commanders](#)", *The Economist*, June 13, 2013.

the Chinese army, including the navy, has ambitious plans for projecting its power. In addition to preparing for the possibility of using force to resolve its territorial demands in East Asia (Taiwan and the South China Sea), the Chinese military is also charged with defending China's expanding "overseas interests." The national objectives require the navy to be able to exert clear military power beyond China's immediate maritime space. To meet these needs, organic support and logistical capabilities are in the process of being constructed, including large maritime support troops and transport planes. The National Defense Transportation Law also addresses and obligates civilian organizations, especially government owned ones, to provide for the China's maritime transportation and infrastructure needs across the globe.<sup>93</sup>

While China rejects international concerns about its intentions, the Chinese army has already started preparing a network of so-called "strategic strongpoints" along its important maritime shipping lanes to protect its growing global interests. Some of the ports and terminals that are part of this growing network may serve dual-purpose functions, enabling the Chinese navy to carry out military actions far from home, which are more complex than those closer to China, and over increasingly long periods of time. This option of dual-use of ports is currently not suited to supporting actual combat, but it is mainly adapted for logistics and intelligence gathering in peacetime. China's 2019 White Paper stated that military missions also include protecting cargo carriers and ships evacuating Chinese citizens from locations abroad, and that the army and navy will open "logistical facilities abroad."<sup>94</sup> The Chinese Navy has visited about one-third of the ports with some Chinese involvement for the sake of maritime logistics and diplomacy. In nine ports, the navy carried out maintenance work and in 47 it made dry-dock repairs, while 69 visits were dedicated to joint exercises.<sup>95</sup>

Signs that supposedly civilian ports are also intended for military use may be found at the Chinese ports in Djibouti (especially as support for Chinese participation in the taskforce fighting maritime piracy at the Horn of Africa),<sup>96</sup> and in the Solomon Islands in the Pacific Ocean.<sup>97</sup> This is addition to the establishment of a military port – Ream Naval Base – in

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<sup>93</sup> Conor M. Kennedy, "[Civil Transport in PLA Power Projectio](#)", *China Maritime Report*, No. 4, U. S. Naval War College, December 2019.

<sup>94</sup> K. Hille, D. Sevastopulo, and J.P. Rathbone, "[China Denies Building Naval Bases but Fear of Its Military Reach Grows](#)", *Financial Times*, June 20, 2022.

<sup>95</sup> Ibid.

<sup>96</sup> Cobus van Staden, "[Fears of a Chinese Naval Base in West Africa Are Overblown](#)", *Foreign Policy*, March 3, 2022.

<sup>97</sup> Tali Goldstein, "[China Enhances Its Influence – and the World Trembles](#)" (Hebrew), *Walla*, April 20, 2022.

Cambodia.<sup>98</sup> A Chinese military presence in the Indo-Pacific region seems rational and perhaps even justified (most of China's oil comes from the Persian Gulf). However, naval bases in the Atlantic in the near and mid-term future are neither highly probable nor justified despite the criticism, especially from the United States, of China's intention to build a naval base in Equatorial Guinea. Today, there is no doubt that placing the mission of protecting "economic investments and infrastructures" and Chinese interests all over the world in the hands of the army and navy will inevitably lead to an increase in the number of ports in which China will be involved, so as to allow them to provide combat support or increase the number of military ports to overcome the limitations of dual-purpose ports. The use of commercial ports for military purposes requires preparation and special means. At present, it still does not seem that these intentions can be realized in the near or mid-term future. Even in the Indo-Pacific region, possibly the most sensitive area for China, the ports in Pakistan and Sri Lanka are not yet ready for military use.<sup>99</sup>

## Haifa Bayport

Haifa Bayport, an infrastructure project of high economic importance to the Israeli economy and part of Israel's 2005 ports reforms, broke ground in 2015 and was completed in 2021. When it went into operation, it added vital infrastructure for Israeli commerce and opened up competition among the country's ports, which in turn led to improved efficiency and enhanced services to exporters, importers, industry, and shipping. Haifa Bayport is operated by the Shanghai International Port Group (SIPG) and serves as an additional Israeli seaport.

The new port is meant to double the capacity of Israel's seaports in response to increased commerce and the local economy's needs. In addition, the new port will be able to handle the newer, more environmentally-friendly mega-ships. Haifa Bayport will help minimize Israel's dependence on foreign ports in the region. A private container platform measuring 800 meters by 17.3 meters makes it possible for large, 400-meter-long ships, carrying up to 24,000 GT, to cast anchor.

Haifa Bayport is operated by the Shanghai-based SIPG on a 25-year lease. Does this fact open a door to Chinese espionage, providing a convenient base for cyberattacks or moves to damage U.S.-Israel relations? Many arguments against building the port were based on the fact that it would be operated by a Chinese company, but are the concerns justified?<sup>100</sup>

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<sup>98</sup> Ellen Nakashima and Cate Cadell, "[China Secretly Building Naval Facility in Cambodia, Western Officials Said](#)", *The Washington Post*, June 6, 2022.

<sup>99</sup> Jocelyn Wang, "[The Realities of Chinas Overseas Port Push](#)", *The Diplomat*, June 4, 2021.

<sup>100</sup> Galia Lavi and Assaf Orian, "[The Launch of the Haifa Bayport Terminal: Economic and Security Considerations](#)", *INSS Insight* 1516, September 2, 2021.

Beyond the economic benefits, the media and various forums have raised concerns about Bayport's management by a Chinese state-owned company. First, the company is subject to an authoritarian regime, which uses "debt traps" and takes control over assets, such as it did in Hambantota Port in Sri Lanka. Second, the Chinese company could allow China's military vessels to anchor in Israel as part of its "Military-Civil Fusion" strategy. Third, SIPG might disrupt the port's activity in times of emergency or leverage its economic power for China's political influence over Israel. Fourth, the port might be used for espionage and cyber operations, including against U.S. Navy ships. Finally, it is argued that even if the port does not embody special risks or create significant Israeli dependency on China, in the eyes of the United States, and certainly in Pentagon and U.S. Navy circles, it has become a provocative symbol of treacherous cooperation by a close ally, Israel, with America's arch-rival, China, and therefore also a threat to the special relationship between the United States and Israel.<sup>101</sup>

Claims that the port might serve as a base for Chinese espionage and that China might suspend its services during crises are unfounded. It is possible to spy on sites at the various ports in Haifa from more comfortable geographic locations. Furthermore, the fact that the port is leased rather than owned by the Chinese contractually prevents a suspension of operations in emergencies. Even having Chinese military vessels anchor at the port is not a serious security threat; it is highly improbable that China would begin a naval military confrontation within a port. In view of the economic benefits, it seems that all reasons against having the port operated by a company partly owned by China are not greatly worrisome. At most, it can be argued that a port on Haifa Bayport's scale is a critical national infrastructure and it would be appropriate for it to be owned by the State of Israel alone, or, if it were privately owned, it should at least be owned by Israeli entities.

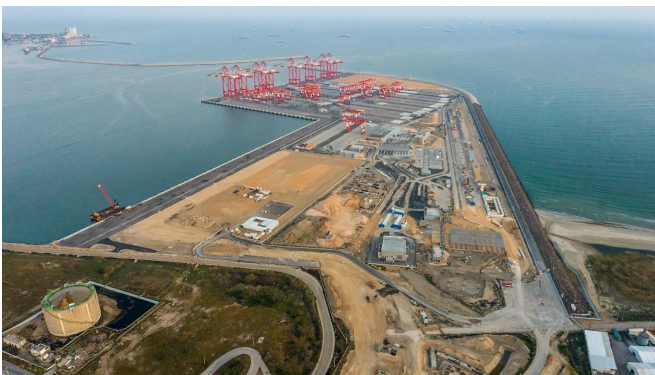


Figure 25: Haifa Bayport<sup>102</sup>

<sup>101</sup> Ibid.

<sup>102</sup> ["The Newest Port in the World: Haifa Bayport Makes History"](#) (Hebrew), *Walla*, September 2, 2021.

## Conclusion

A nation's sea power consists of three major elements: ports, shipping lanes, and a military navy. The development of China's economy since 1979 and its status as a global superpower have led to a change in the nation's grand strategy and consequently to a change in its naval strategy. China's merchant navy is the largest in the world, and some of its vessels are already adapted for military purposes. The need for shipping lanes that begin and end at ports led China to a strategy of building, acquiring, and managing ports around the world. This model began as "a String of Pearls" and partly forms a core piece of the Belt and Road Initiative, which is expanding to new parts of the world to form what is now being called the Maritime Silk Road. It would seem that, among all the nations in the world, China – with considerable serious and ongoing work – is adopting Mahan's naval strategy with regard to commercial shipping and Corbett's naval strategy of a fighting naval force.

Shipping and ports exist mostly for economic reasons. Securing shipping routes for transporting energy and other goods is now at the top of China's military priorities. Without these enormous ports with the capacity to handle very large cargo carriers, China's commerce would not be as developed as it is. Control of ports along the shipping lanes of countries of strategic significance for China is a key component of its grand strategy. It enables China to hold another nation hostage, in a sense, thanks to Chinese prosperity, which is liable to force a weaker nation's leadership to adopt political positions convenient for the CPC. Therefore, seaports are a critical factor in China's ability to wield commercial, diplomatic, and military influence.

Enhanced maritime connectivity has created significant economic benefits to China, giving it much greater say in matters of transporting goods throughout the world. Chinese leaders are pushing to leverage the nation's resources to strengthen connectivity, especially the improvement of port infrastructures. In 2022, we saw the tremendous clout the Chinese ports have on the global shipping industry. As President Xi Jinping noted, "economic superpowers must be maritime superpowers and shipping superpowers".<sup>103</sup>

But there are several differences between China's strategy, on the one hand, and all the other international shipping route and port operators, on the other. As a nation with a centralized communist government, Chinese companies are not constrained by nor operate on the basis of commonly accepted commercial practices, because they must meet the demands and obey the directives of their government and the CPC. To

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<sup>103</sup> "[How Is China Influencing Global Maritime Connectivity?](#)", *China Power*, Retrieved September 17, 2022.

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that end, they are willing to pay higher prices, helped, of course, by receiving special budgets to do so. Although ports are acquired or constructed on the basis of economic imperatives, a political aspect is most certainly also involved. By owning and operating a complex network of key logistical crossroads throughout Asia, Europe, and Africa, China can effectively control a huge part of its incoming supply chain for essential goods, such as energy sources from the Middle East, and control outgoing trade routes for its exports. The vast fleet sailing under its flag, control of ports, and keeping shipping lanes active provide China with a high level of independent capabilities, prevent dependence on foreign shipping lines, and reduce the amount of political and economic leverage other nations can bring to bear on it.

There is no practical way to deny China commercial entrance into most foreign markets. The United States failed to persuade Israel to revoke the concession SIPG won at Haifa Bayport. If so close a security partner of the United State like Israel is unconvinced that the security risks outweigh the economic benefits, there is a chance that other nations will likewise not deny Chinese involvement in their critical strategic infrastructures.

One may assume that only a few commercial ports, appropriately planned and equipped, will fulfill military functions in terms of logistics, maintenance, refueling, storing munitions, and so on. Their immediate capabilities are primarily focused on intelligence and communications, two capabilities that do not require the establishment of facilities and permissions. But most civilian ports are unlikely to provide the Chinese navy with support or any kind of political preference, whereupon China will probably examine the possibility of building military ports, although only in countries where China can receive political and other approvals.

In the process of constructing strategic strongpoints, China is not placing too great an emphasis on military diplomacy. Mostly, it simply denies its intentions. The speed with which China is implementing its plans has been discussed in a study: when military diplomacy is advanced, it is necessary to pay attention to method and speed. It isn't a good idea to push ahead with force or to be too keen on attaining results. Instead, it makes good sense to conduct talks with the target nation and proceed gradually.<sup>104</sup>

At most ports with Chinese involvement, China holds a minority of controlling shares, and it is therefore safe to assume that it lacks the ability to control the economy or certainly to have a huge effect on the host nation. Greece, Belgium, Canada, Germany, and African and other nations are examples of countries worried about the influence of

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<sup>104</sup> K. Hille et al., "[China Denies Building Naval Bases](#)".

China's investments in their ports and have taken means to shield themselves against China, which is described as a partner, economic competitor, and systematic adversary.<sup>105</sup>

Undoubtedly, there are political, strategic, and economic risks to the nations where China maintains ports. The biggest challenge for Chinese companies investing in global ports is profitability. In their zeal to increase their overseas presence, these companies might be investing overblown sums or discounting the political sensitivities that could prevent the ports from generating worthwhile profits. It is therefore necessary to undertake a careful analysis of the economic potential of these projects. Decision making in a nation with a communist government – always not only economically-driven and always containing a political component – could bypass such risks.

This detailing of the facts and data reflecting China's force construction makes it possible to assess that China is concurrently operating geo-economically and geo-strategically to realize both Mahan's and Corbett's strategies in order to control shipping lanes to provide for the economic needs of a global superpower with a population of more than 1.4 billion, while also making economic profits to the extent possible. This in addition to having the ability to defend those shipping lanes and ports, perhaps not all of them, but at least those most critical for realizing China's geo-economic and geo-strategic goals.

The size of China's merchant navy is unprecedented, with 5,600 to 9,000 vessels (estimates vary by source).<sup>106</sup> It is possible that the Greek merchant navy has more vessels, about 21 percent of the entire global merchant marine fleet,<sup>107</sup> but there are no international claims that Greece is aiming for global hegemony in the field of shipping. The most strident opponent to China's strategy is the United States, whose merchant navy shrank from 485 to 178 vessels between 1996 and 2022.<sup>108</sup> Some U.S. voices are calling on the administration to expand both the merchant navy and the U.S. Navy fleet,<sup>109</sup> but it is doubtful these calls will be heeded.

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<sup>105</sup> George Fujii, "[China's Emergence as a Power in the Mediterranean: Port Diplomacy and Active Engagement](#)", *H-Diplo Article, Review 1084*, January 19, 2022.

<sup>106</sup> GT staff reporters, "[China's Foreign Trade Mirrors Stable Start in Q1 Despite Omicron Outbreak, Ukraine Crisis](#)", *Global Times*, April 13, 2022.

<sup>107</sup> T. Kokkinidis, T., "[Greece Remains Top Shipping Nation in the World](#)", *Greek Reporter*, May 20, 2022.

<sup>108</sup> "[Number of Ships in the U.S.-Flag Merchant Fleet from 1996 to 2022](#)", *Statista*, Retrieved December 13, 2022.

<sup>109</sup> Xiaoshan Xue, "[As China Expands Its Fleets, US Analysts Call for Catch-up Efforts](#)", *VOA*, September 13, 2022.



Given the complexity of China's ports and shipping diplomacy, Jeffrey Bader's conclusions are notable:

China's growing and modernizing military will complicate United States strategy regionally but will not approach American force projection capabilities globally... The temptation to see China as an enemy rather than a competitor is reinforced by its internal policies of repression... The United States and China have areas of overlapping interest and issues on which they must work together.<sup>110</sup>

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<sup>110</sup> Jeffrey Bader, "[Meeting the China Challenge: A Strategic Competitor, Not an Enemy](#)", in Ryan Hass, Ryan Mcelveen, and Robert D. Williams (eds.), *The Future of Us Policy Toward China – Recommendations for the Biden Administration* (Brookings Foreign Policy's John L. Thornton China Center and Yale Law School's Paul Tsai China Center, November 2020): 1–7.

## Strategic Weapons Supplies in the Context of Special Relations: AUKUS as a Case Study

*Itzhak (Itsik) Bilia*

### Introduction

On September 15, 2021, the leaders of three nations – the United States, the United Kingdom, and Australia – announced the formation of a trilateral security partnership named AUKUS.<sup>1</sup> The first and primary initiative of this new partnership is drawing up a plan within 18 months for the future delivery of eight nuclear-powered submarines to the Australian navy fleet. The emphasis is on providing nuclear propulsion technology rather than nuclear weapons, and the submarines will be equipped with conventional arms only. This new partnership also includes cooperation in other fields, such as cyberspace, artificial intelligence, quantum technology, and underwater capabilities. This is a complex and unique project involving military, scientific, and industrial cooperation.<sup>2</sup> A geostrategic analysis of this development indicates a US attempt to rebalance power relations in the Indo-Pacific region in light of China's unprecedented military buildup and its aggressive moves in the South China Sea and against Taiwan.<sup>3</sup>

This article focuses on the importance and strategic contribution of nuclear-powered submarines for Australia and examines why the United States (with UK help) decided to supply such a significant capability to its Australian ally rather than to Japan or to India, the other partners in the QUAD,<sup>4</sup> or to other strategic allies in the region, such as South Korea. The explanation I offer in this article is that the three nations have a special relationship based on their being part of the Anglosphere and on their shared language, culture, and history. I contend that this special relationship is the reason for the decision to supply this unique strategic weapon to Australia rather than to other allies in the region. This premise can be proven by comparing this decision to a historical case

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<sup>1</sup> The name is an acronym of Australia, United Kingdom, and United States.

<sup>2</sup> *The White House*, "[Remarks by President Biden, Prime Minister Morrison of Australia, and Prime Minister Johnson of the United Kingdom Announcing the Creation of AUKUS](#)". September 15, 2021.

<sup>3</sup> For more on the topic, see Benni Ben Ari's article "Strategies in the Indo-Pacific Region", in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2022), pp. 103–121.

<sup>4</sup> The Quadrilateral Security Dialogue (QUAD) is a forum of states that deals with strategic issues. Its members are Japan, Australia, India, and the United States. The forum was established in 2007. It fell apart the following year, but was reinstated in 2017. The dialogue extends to joint military exercises called Malabar, which are seen as a counter to China's buildup. "[The Quad Conducts Malabar Naval Exercise](#)". 2021. (September 18, 2022).

with similar characteristics. In the 1960s, during the Cold War with the USSR, the United States made a similar move when it supplied the Royal Navy with Polaris missiles, ballistic missiles capable of carrying a nuclear warhead fired from submerged submarines. The technology, considered strategic and unique then and today, was provided only to the British, with which the United States have a special relationship, to the exclusion of other NATO allies, such as France.

## The French Connection

Today, the Australian navy operates six Collins-class submarines that run on conventional engines (diesel and electricity). Built in Australia according to designs of the Swedish company Kockums, they became operational in 2004.<sup>5</sup> As an island nation, Australia recognizes the importance of the underwater domain and its submarine fleet, and therefore engaged in many discussions about the future upgrade of its submarines, examining German, Japanese, and French proposals.

In 2016, Australia signed an agreement with the French Naval Group (formerly known as DCNS), which is largely a government-owned corporation. The deal included the construction of 12 advanced, conventionally powered Shortfin Barracuda submarines at a total cost of \$37 billion.<sup>6</sup> The French-Australian submarine project was launched soon thereafter, but suffered many schedule delays and cost overruns. Furthermore, the number of Australians working on the project never reached the level that Canberra had anticipated. As a result, the expected return compared to the high investment in the project came under harsh criticism.<sup>7</sup>

The day after the AUKUS partnership announcement was made, Australia cancelled its contract with the French company, at a cost to the Australian taxpayer of \$2.4 billion (including a \$585 million penalty) for a deal that, since its inception, had not provided any real gain.<sup>8</sup> The French responded sharply to the cancellation, recalling their ambassadors

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<sup>5</sup> For more on the project, see: *Naval Technology*, "[SSK Collins Class \(Type 471\) Submarine](#)", May 3, 2001.

<sup>6</sup> Interestingly, this model, with its conventional operation, is based on the Barracuda model, a nuclear-powered submarine being brought into operational service in the French fleet. At first glance, technologically speaking, France could have offered Australia nuclear-powered submarines just as did the Anglo-Saxon partners. Similarly, France is helping Brazil build nuclear-powered submarines as part of the strategic partnership between the two nations. "[Brazil Might Get Nuclear-Powered Submarines Even before Australia](#)", *The Economist*. September 30, 2021.

<sup>7</sup> *POLITICO*, "[Why Australia Wanted out of Its French Submarine Deal](#)", September 16, 2021.

<sup>8</sup> *BBC News*, "[Aukus: Australia to Pay €555m Settlement to French Firm](#)", June 11, 2022, sec. Australia.

from Washington and Canberra (the French ambassador to the United States was returned after the United States issued a statement conceding that the move should have been coordinated with the French). The French viewed the cancellation of the deal as an Australian breach of faith regarding cooperation with them. As an EU leader, France considers itself dominant in the Indo-Pacific region, given its important interests there (colonies and overseas territories), such as New Caledonia and French Polynesia, home to about two million French citizens. Those archipelago regions define a large EEZ (exclusive economic zone), which is why France maintains a military presence of some 7,000 soldiers there.<sup>9</sup> In addition to the economic loss from the cancellation, France, considered a global weapons provider, including in the underwater sector, also suffered damage to its prestige.<sup>10</sup> However, above all, France views itself as a key Western democratic partner in all moves related to China. US President Joe Biden referred to France in his statement, trying to downplay the meaning of the AUKUS partnership by declaring France an important partner in confronting developing threats in the Indo-Pacific theater.<sup>11</sup>

The Collins-class submarines in current use are expected to continue to serve the Australian navy until 2030 or so, whereas the new AUKUS submarines are expected to become operational in the 2040s. As a result, there is a decade-long gap for which Australia is busy discussing possible solutions, such as the purchase of conventionally powered submarines to be used as an "intermediate" generation until the arrival of the nuclear-powered ones.<sup>12</sup> Senior officials in the Australian security establishments warn of a situation in which Australia might be exposed and lacking a solution in its underwater domain. The government promised to publish a plan at the beginning of 2023 that would define the model to be built, the time it would take to build the submarines, and whether an additional generation of submarine models would be needed.<sup>13</sup> In addition, Australia

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<sup>9</sup> France has the second-largest EEZ in the world, consisting of some 11.035 million square kilometers. "[Drops in the Ocean: France's Marine Territories](#)", *The Economist*, January 13, 2016.

<sup>10</sup> In 2005, France transferred the technology for independent manufacturing of Kalvari-class submarines, based on the French Scorpène-class submarines, to India. These are conventionally powered with a displacement of 1,550 tons. India intends to build six such submarines by 2024, part of its arms race with its neighbor and adversary Pakistan, which bought eight Yuan Type 039A-class submarines from China. Gabriel Honrada, "[France, China Fueling India, Pakistan Sub Race](#)", *Asia Times*, February 4, 2022.

<sup>11</sup> *The White House*, "[Remarks by President Biden, Prime Minister Morrison of Australia, and Prime Minister Johnson of the United Kingdom Announcing the Creation of AUKUS](#)", September 15, 2021.

<sup>12</sup> South Korea offered Australia conventionally powered submarines with AIP capability that increases their operational range. These can be provided within seven years of an order being placed. Colin Clark, "[South Koreans Offer Aussies New Subs in 7 Years to Close Collins Gap](#)", *Breaking Defense (blog)*, July 25, 2022.

<sup>13</sup> *ABC News*, "[AUKUS Nuclear Submarine Plan to Be Revealed by March 2023](#)", June 28, 2022.

can lease submarines from its partners in the interim while using the time until the new submarines are delivered to train teams for the future operation of these submarines. The United States has authorized a comprehensive plan to train Australian crews in the United States in commanding, operating, and maintaining nuclear-powered submarines. The purpose is to create a pool of officers and sailors who will eventually serve on the advanced submarines.<sup>14</sup>

## A Strategic Leap

The United States is aware of China's efforts to construct a new world order centered around itself. This involves China building a network of satellite states and subordinate nations, mainly by using economic leverage.<sup>15</sup> Past efforts to reduce this influence, in part by establishing the QUAD partnership, have yielded few results. It seems, then, that the AUKUS agreement is a dramatic step aimed at thwarting a Chinese attempt at attaining maritime hegemony in the Indo-Pacific region.<sup>16</sup>

As noted, according to the joint declaration, there are 18 months to define the details of the plan. Still unsettled are questions such as the submarine model, its operational capabilities, the construction site, and the operational date. But a fleet of eight Australian nuclear-powered Virginia-class submarines (United States), Astute-class submarines (United Kingdom), or a new class altogether will provide the Australians with the ability to project naval power in the Indo-Pacific domain far beyond the shores of the Australian continent. The Americans and the British intend to provide the Australians with sensitive, classified technology, currently in the hands of only a handful of nations across the globe. According to the data in the "Military Balance 2021" report, the list of countries with nuclear-powered submarines includes the leading military superpowers: the United States, the United Kingdom, France, Russia, and China.<sup>17</sup> India is another country with such capability. Having leased an Akula-class nuclear-powered submarine from Russia for a 10-

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<sup>14</sup> Megan Eckstein, "[New Bill Would Establish AUKUS Submarine Training Program](#)", *Defense News*, June 16, 2022.

<sup>15</sup> This is the claim of Bill Hayton, author of *The South China Sea: The Struggle for Power in Asia*. To back the claim, he cites the 2016 incident when the International Court of Justice in The Hague ruled in favor of the Philippines in its maritime border dispute with China in the South China Sea. The Philippine president ignored the ruling, choosing instead to accept significant Chinese financial investment in his country. "[AUKUS Reshapes the Strategic Landscape of the Indo-Pacific](#)", *The Economist*, September 25, 2021.

<sup>16</sup> Stephen M. Walt, "[The AUKUS Dominoes Are Just Starting to Fall](#)", *Foreign Policy* (blog), September 18, 2021.

<sup>17</sup> [The 2021 Military Balance Chart: Submarines and Sub-Surface Warfare](#), *The Military Balance*, 121, no. 1 (2021).

year period, India is now in the midst of developing and constructing its own Arihant-class nuclear-powered submarines.<sup>18</sup> Australia would thus become the seventh country in the world to join the exclusive club of states with nuclear-powered submarines (Table 1).

Table 1: Nations with SSNs

NATION	SSN <sup>19</sup>	SSBN <sup>20</sup>	TOTAL
United States	54	14	68
Russia	18	11	29
China	6	6	12
United Kingdom	7	4	11
France	4	4	8
India <sup>21</sup>	-	1	1
Australia (AUKUS) – planned	8	-	8

Source: International Institute for Strategic Studies

Technology for nuclear-powered submarines will upgrade Australia's naval capabilities in several ways. The submarine in question weighs twice as much as the submarines Australia currently operates or the ones they intended to buy from the French. While SSNs (the hull classification for fast, nuclear-powered attack submarines) are not the most suitable choice for Australia's relatively shallow littoral waters and the regions north of Australia and southeast Asia, they do offer many advantages compared to SSKs (conventionally powered submarines): higher speeds, longer operational duration, and greater operational ranges. According to calculations of the Center for Strategic and Budgetary Assessments, a Washington D.C. think tank, an SSK leaving the home naval base of the Australian submarine fleet located near Perth, HMAS Stirling, can reach the South China Sea and remain there for about two weeks before being forced to return to base for refueling and maintenance. In contrast, an SSN is not constrained by fuel limitations and could therefore stay in the target region for as long as it had sufficient supplies for its crew.<sup>22</sup> Clearly, while in the target region, the submarine carries out a series of missions, such as intelligence gathering, sending special forces teams on clandestine operations, and, of course, threatening the adversary's ships and submarines.

<sup>18</sup> Rajeswari Pillai Rajagopalan, "[India Launches 3rd Arihant Submarine](#)", *ORF*, January 7, 2022. Additionally, with regard to India, some view the Soviet/Russian-Indian relations as special relations based on anti-colonial/anti-imperial history and values.

<sup>19</sup> SSN is the designation for a nuclear-powered attack submarine.

<sup>20</sup> SSBN is the designation for a nuclear-powered ballistic missile submarine.

<sup>21</sup> India has two other submarines, which are not currently operational and therefore undergoing processes of testing and sea trials (Rajagopalan, 2022).

<sup>22</sup> An SSN can remain at sea for 81 consecutive days while an SSK can do so for only 23.

Regarding secrecy, submarines powered by diesel and electricity (i.e., electricity stored in batteries) must surface periodically to enable the diesel engines, which require oxygen to run, to recharge their batteries. SSNs, of course, do not need to surface and therefore can avoid detection with greater ease. However, SSNs do make noise due to the operation of cooling mechanisms for the nuclear reactor, while the diesel-electrical submarines are quieter. However, SSNs can camouflage their noise between different layers of water temperature and avoid detection thanks to their speed and range.<sup>23</sup>

The change in the method of powering Australia's submarines is a strategic as well as a technological change. As noted, SSNs will allow the Australian navy to stay for longer periods in regions of strategic importance, such as the Strait of Malacca. Moreover, these submarines will improve the Australian navy's offensive capabilities by enabling them to launch long-range cruise missiles from east of the Philippines, for example, and strike at the Chinese mainland. But the most prominent advantage is cooperation with US and UK submarine fleets of this type. The Australian navy can place its new submarines at its naval base in Stirling at the western edge of the continent but also in the naval bases in Darwin on the northern shore and in Brisbane on the eastern shore. In addition, these ports can serve the US and UK navies as sites for preliminary formation and embarkation. Indeed, the day after the AUKUS announcement, the United States declared a significant increase in its military presence in Australia.<sup>24</sup>

Similarly, there are a number of strategic missions in which Australian submarines can contribute to the strategic array the United States is consolidating to counter China. One is participating in protecting joint task forces that include aircraft carriers and other vessels cruising the region, whose objective in wartime is to deploy most of their military force against China. Another, and perhaps more significant mission is participating in anti-submarine warfare (ASW) against China's nuclear-powered submarines armed with nuclear ballistic missiles, the mainstay of China's nuclear deterrent. China's set of land-based nuclear missiles is not only subject to a first-strike threat from the United States, but it is also not immune to the missile defense systems of the United States and its regional allies. For the most part, China's deterrence is based on the second-strike capabilities of its SSBNs hiding in the deepest parts of the South China Sea or the western part of the Pacific Ocean. The AUKUS project has the potential to seriously threaten China's deterrence.<sup>25</sup>

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<sup>23</sup> "[AUKUS Reshapes the Strategic Landscape of the Indo-Pacific](#)", *The Economist*, September 25, 2021.

<sup>24</sup> Tuvia Gering, "[Why China Is Genuinely Worried about AUKUS](#)", *SupChina*, November 29, 2021.

<sup>25</sup> Romuld Gem, "[Troubled Waters: Nuclear Submarines](#)", *ICAN Australia (blog)*, July 6, 2022.

## Why Only Australia?

Having examined the strategic importance of the AUKUS alliances submarine project, an important question arises: Why provide these means only to Australia and not to other regional allies? This question becomes even more acute when considering the other regional partners efforts to strengthen and improve their military capabilities in the underwater domain. South Korea, for example, requested the technology from the United States and was rebuffed, partly because the United States does not want to supply nuclear materials to non-nuclear nations, and partly because, as a signatory to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), the United States has limits on its actions in this sphere.<sup>26</sup> Nevertheless, South Korea managed to develop its own ballistic missile to be launched from submarines (SLBM), thus becoming the seventh country in the world with this capability and the only one of the non-nuclear nations to have undertaken such a step.<sup>27</sup> India, as noted above, is developing its own SSBN, based on Soviet models, and Prime Minister Narendra Modi has said that India would be happy to receive help from France or from the AUKUS partners in this field.<sup>28</sup> Japan, too, is expanding its military budget and building up its naval capabilities. After the establishment of AUKUS, there was talk about the possibility of expanding the alliance to include other nations, such as Japan. At first glance, this would seem to offer many benefits for the geostrategic situation of the United States and its allies in the region. However, the rumor was denied.<sup>29</sup> If so, why only Australia and no one else? I propose an explanation based on the allies preference for nations with which they have "special relationships" as opposed to others. This preference is reflected in the exclusive supply of weapons that are strategic and unique to such partners and not to others.

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<sup>26</sup> This NPT policy-in-principle on the part of the United States amplifies the understanding that the AUKUS alliance is truly extraordinary. The United States, the United Kingdom, and Australia declared that they were committed to meeting all the requirements of the International Atomic Energy Agency, but China claimed that the move had created a dangerous precedent that would lead to NPT violations. Stephen Dziedzic, "[China Launches Furious Attack on UN Nuclear Watchdog for 'lopsided AUKUS Report'](#)", *ABC News*, September, 2022. For more about South Korea's SSN ambitions and the connection to the United States, see: Choe Sang-Hun, "[South Korea Has Long Wanted Nuclear Subs. A New Reactor Could Open a Door](#)", *The New York Times*, December 13, 2021, sec. World.

<sup>27</sup> Kelsey Davenport, "[South Korea Tests Submarine-Launched Missile](#)", *Arms Control Association*, October 2021.

<sup>28</sup> "[AUKUS Reshapes the Strategic Landscape of the Indo-Pacific](#)", *The Economist*, September 25, 2021.

<sup>29</sup> "[Washington and Tokyo Deny Japan Invited to Join AUKUS Security Pact](#)", *The Japan Times*, April 14, 2022.



Special relationships represent a high level of bilateral relations, and include political, economic, and cultural connections between two states.<sup>30</sup> They involve unique features that distinguish the relationship between one pair of states from those they have with other states. Accordingly, each of the two states may maintain special relationships with a limited number of other states; otherwise, the quality of being "special" loses any meaning. Such relationships are acknowledged by the pair itself and by other states, especially those with whom there are also special relationships. These are marked by closeness, collaboration, mutual trust, and intimacy between the two states, not only at the governmental level but also in society at large. Although special relationships represent the exception rather than the rule in international relations, researchers have mapped more than 50 different special bilateral relationships, including the relationship Israel has with the United States and the one Germany has with Israel.<sup>31</sup>

In addition to being an important ally of the West in the Indo-Pacific region, the uniqueness of Australia lies in its being a part of the Anglosphere – the English-speaking nations – having shared history of being connected to the British Empire of the past centuries. Anglo-Saxon culture and values distinguish Australia from other allies in the region, and have served as the basis for the special relations between it and the United States and the United Kingdom.<sup>32</sup> Australia is unique in that geographically, it lies in the Pacific/Southeast Asian domain, but its history and cultural orientation are for the most

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<sup>30</sup> The "special relationship" concept was first introduced to global consciousness by Sir Winston Churchill in an address commonly known as his "Iron Curtain speech", which he gave on a visit to the United States as leader of the UK opposition in 1946.

<sup>31</sup> See: Sebastian Harnisch, 2017, "[Special Relationships in Foreign Policy](#)", In *Oxford Research Encyclopedia of Politics*. Oxford University Press. Similarly, the research literature offers several other sources on the creation of special relationships between nations, e.g., those based on a historic event or on a formative national experience, such as a national trauma. For instance, the special relationships between Germany, on the one hand, and several nations that were most obviously traumatized by Nazi aggression during World War II, on the other hand. At the heart of such a relationship stands Germany's reconciliation efforts with those nations, such as France and Poland, which were occupied by the Nazi regime, and the State of Israel, representing the Jewish people, one-third of whom was eradicated in the Holocaust. See: Lily Gardner Feldman, 2012, *Germany's Foreign Policy of Reconciliation: From Enmity to Amity*, Lanham, MD: Rowman & Littlefield Publishers.

<sup>32</sup> The Anglosphere is a commonly used term referring to the relationships among the United States, the United Kingdom, Canada, Australia, and New Zealand, i.e., nations with special relationships between one another and with the United States (as the world's economic and military superpower) on the basis of a shared historical, cultural, and linguistic background. These relationships are manifested in various alliances, such as the Five Eyes and ANZUS. For more, see: J. Dumbrell and A. Schäfer (eds.), 2009, [Americas' Special Relationships: Foreign and Domestic Aspects of the Politics of Alliance](#), Routledge.

part European. There is a kind of internal tension between these two components in the formation of the character of the Australian state. This tension affects the country's policy and the strategic direction the country takes within the international system. Following World War II, Australia shifted the core of its strategic partnership from the United Kingdom to the United States, and remained constant in its ANZUS (Australia, New Zealand and United States Security Treaty) alliance with the United States (which originally included New Zealand too<sup>33</sup>) throughout the Cold War and the global war on terrorism.<sup>34</sup> In those years, there was domestic criticism about the necessity of the close alliance with the United States and questions about the degree to which it served Australia's national interests. Some see the expansion of the partnership with the United States and United Kingdom as a regression from the process of formulating an independent local identity and a return to the days of the establishment of the Australian state as a part of the British Empire.<sup>35</sup>

In fact, the joint declaration by the nations' leaders on the establishment of the three-country AUKUS partnership included explicit reference to their deep shared heritage. US President Joe Biden mentioned the 100 years of cooperation among the three nations during which US, British, and Australian soldiers fought side by side, from the trench warfare of World War I, through the fight for control over the islands in the Pacific Ocean during World War II, the Korean War, to the warfare in Afghanistan and the Iraqi desert. Then-UK Prime Minister Boris Johnson referred to the closeness and the natural connection among the countries; similarly, then-Australian Prime Minister Scott Morrison spoke of the shared beliefs and friendship created among them over time. The joint statements of the countries' leaders reveal one of the prominent indicators of their special relationships: their resilience in the face of crises and stability over time, including the conduct of these nations when crises do arise in their relationships.

A special relationship represents a relatively fixed situation in the global political environment, rather than a temporary state created under special conditions that passes once the sides' interests or capabilities change. One can identify other features of a special relationship manifested in the interactions among the three AUKUS partners: official public expressions of one country towards the other about their special relationship; the establishment of official relations between governmental agencies at all levels (military

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<sup>33</sup> New Zealand has not been a member of ANZUS since 1985 because of its refusal to allow nuclear-powered US vessels or vessels carrying nuclear weapons to anchor in its ports.

<sup>34</sup> M. Beeson (2009). Australia, the United States and the Unassailable Alliance. In J. Dumbrell and A. R. Schafer (eds.), *Americas' Special Relationships: Foreign and Domestic Aspects of the Politics of Alliance*, Routledge, pp. 76–92.

<sup>35</sup> Romuld Gem, "[Troubled Waters: Nuclear Submarines](#)", *ICAN Australia* (blog), July 6, 2022.

echelons and senior officialdom); expressions of support in international institutions and organizations; cooperation of institutions and organizations in social, cultural, and academic settings; a relatively high volume of economic and military commerce between them; one side in the special relationship has unique needs that only the special relationship partner can provide; a profound connection between the people and the societies beyond the political connections between the regimes and leaderships; and conduct between the leaders characterized by transparency, a lack of formality, mutuality, exclusivity, confidentiality, trust, and more. One must take into account that, while special relationships can be assessed by these criteria, beyond the value they provide in such absolute terms, they also involve a relative value measured by comparisons with relationships with other nations.<sup>36</sup>

Indeed, the expression of Australia's preference in this move did not go unnoticed by other regional allies that voiced criticism that the move expressed Anglo-Saxon separatism and ignored important allies in Europe and Asia. Some claimed that the new partnership reduced the impact of the QUADs power, and there were those who even called for providing this capability to South Korea, now in a process of strengthening its naval capacity against the common threat. However, others, such as Japan, Singapore, the Philippines, and New Zealand, openly supported the move, viewing it as an important step for preserving freedom of navigation and security in the region. At the same time, some, such as Malaysia, carefully expressed reservations, particularly about the danger of a regional conflagration.<sup>37</sup>

## History Repeats Itself

Can a special relationship be the reason for unique strategic weapons being supplied to one country rather than to others? Unique, classified technology is exclusive to powers that generally do not want to share it with other countries. Still, there are examples of one

<sup>36</sup> For more on the characteristics of special relationships, see: Michal Ben-Josef Hirsch and Manjari Chatterjee Miller, "[Otherness and Resilience in Bilateral Relations: The Cases of Israel–Germany, India–Russia, and India–Israel](#)", *Journal of International Relations and Development* (April 2020); Alice Pannier, "[Bilateral Relations](#)", In *Global Diplomacy: An Introduction to Theory and Practice*, edited by Thierry Balzacq, Frédéric Charillon, and Frédéric Ramel, Springer International Publishing, pp. 19–33; Kai Oppermann and Mischa Hansel, "[The Ontological Security of Special Relationships: The Case of Germany's Relations with Israel](#)", *European Journal of International Security*, 4, no. 1 (2019): 79–100; Kristin Haugevik, 2018, *Special Relationships in World Politics: Inter-State Friendship and Diplomacy after the Second World War*, London: Routledge; Alex Danchev, "[On Specialness](#)", *International Affairs*, 72, no. 4 (October 1996): 737–50.

<sup>37</sup> "[AUKUS Reshapes the Strategic Landscape of the Indo-Pacific](#)", *The Economist*, September 25, 2021.

country – usually a power with significant military capabilities – providing another country with this type of capability. Again, the question arises as to why this is so. The hypothesis I suggest is that when discussing strategic capabilities of the highest level, realist theory do not provide a sufficient explanation. This makes it necessary to turn to theories based on ideational and identity-based explanations. That is, the choice of a specific country is not entirely based on strategic considerations of a balance of power and a balance of threat. There is another distinct component that could lead to the preference for one country over another – the special relationship. I make this claim by comparing the current case with a historical case from the 1960s, at the height of the Cold War, when the United States provided ballistic missiles launched from the Polaris class submarine to the United Kingdom, as well as helping it build nuclear propulsion for submarines.<sup>38</sup>

The development of the Polaris missile was one of the most challenging projects the United States had ever undertaken. They were the first missiles in the world to be launched from submerged submarines. The Polaris missile played an important role in nuclear deterrence because it changed the rules of the game. Until the Polaris, the fear was that one superpower would surprise the other by launching a first strike of nuclear intercontinental ballistic missiles (ICBMs) or by attacking with strategic bombers dropping nuclear bombs on the other sides control centers, missile bases, and airports, creating an inherently unstable strategic situation. When both sides developed submarines equipped with nuclear ballistic missiles, which are very difficult to locate and identify, the superpowers suddenly had second strike capabilities. Should one side surprise the other, it cannot manage to destroy most of its nuclear arsenal with a first strike, and the attacker would come under the threat of a second strike from some unknown location in the ocean, and would therefore think twice about the first strike being able to achieve its goal in practice. This was how mutual nuclear deterrence, based on the threat of mutual assured destruction (MAD), was achieved, and fundamentally changed the Cold War reality.

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<sup>38</sup> Other potential comparisons are the German-Israeli case whose special relationship is based on national trauma that affected the provision of German submarines of a unique class under unique acquisitions terms, while also promising not to provide the same submarine to Israel's adversaries without Israel's authorization. Kai Oppermann and Mischa Hansel, "[The Ontological Security of Special Relationships: The Case of Germany's Relations with Israel](#)", *European Journal of International Security*, 4, no. 1 (2019): 79–100. Another case is the US-Israeli one in which one sees a special relationship that is not based on strategic considerations alone, and which results in supply and joint development of unique strategic weapons systems, such as advanced aerial defenses based on the Arrow missile. Jeremy M. Sharp, 2020, "[U.S. Foreign Aid to Israel](#)", *Congressional Research Service*, no. RL33222 (November): 46.

To understand the connection between the Polaris missile and special relationships, one must be familiar with the background the events at that time. In the late 1950s and early 1960s, the Cold War was at its peak. Long-range bombers armed with nuclear bombs were the only nuclear weapon the United Kingdom had to deter the USSR. Given the Soviet development of sophisticated aerial defense systems, which interfered with bombers ability to reach their targets, the United Kingdom sought to upgrade its nuclear arsenal by acquiring the US ballistic Skybolt missiles, which could be launched from planes over great distances. The project suffered many delays and problems and was finally scrapped by the United States, a cancellation that led to a serious crisis in the relationship between the two nations. At the same time, the United States was developing another option for launching ballistic missiles, this time from submerged submarines (SLBMs) of the Polaris model. These missiles were considered the most complex and classified weapons system the United States was developing at that time. On December 21, 1962, British Prime Minister Harold Macmillan met with US President John Kennedy in Nassau in the Bahamas to try to resolve the crisis between their countries. Macmillan spoke to Kennedy about the moral obligation the United States had to provide the United Kingdom, its closest and most loyal ally, with a suitable alternative to the scuttled Skybolt. The US side, too, realized it had a duty to compensate the British. Kennedy suggested that the Skybolt project would continue, now as a joint project in which each country would be a full partner in its development. Although it was clear to the United States that Macmillan really wanted the Polaris, the Americans did not want to involve a foreign party, no matter how close, in its most complicated and clandestine project. Moreover, the Kennedy administration objected to the idea of providing Polaris missiles to an ally that might operate submarines equipped with these missiles independently of the United States. At that time, US policy supported the deployment of Polaris-armed submarines by multinational forces comprised of NATO members forming multinational submarine crews under US command in the context of NATO missions. The intention was to prevent any one NATO member from having this unique capability while at the same time expanding NATO's deterrence capacity in a controlled manner under US command. Macmillan, who had already stopped considering the Skybolt a reliable nuclear deterrent, insisted on the Polaris as the only possible alternative. After intensive efforts, he succeeded in convincing Kennedy.

Kennedys acquiescence struck many of his aides as a step too far, one he should not have taken. There are several possible explanations for his decision based on different levels of analysis of international relations. At the systemic level, it was necessary to strengthen the joint deterrence of western nations against the Soviet Union, and the British were the Americans closest allies. At the domestic politics/state level, the United States wanted to strengthen the Tory Party that governed the United Kingdom and thwart the rise of

the Labour Party. And, at the individual level, the relationship between the US president and the British prime minister was very close. However, beyond all of these explanations, it is clear that the relationship between two nations was unique and connected to their shared identity. President Kennedy realized that, at that time, a US refusal would result in an unprecedented crisis in the special relationship between the nations and therefore took an unusual step. It would have been impossible to reach a similar agreement with any other ally.<sup>39</sup>

Ultimately, what came to be called the Nassau Agreement ended with the sale of the Polaris missile to the United Kingdom (without the nuclear warheads, which the British were able to provide on their own), on condition that the missiles would be deployed under NATO command. The British were pleased because the agreement included an article that should a threat to supreme UK interests develop, the British would be able to deploy the missile independently. While the British were now somewhat dependent on US technology to operate their own submarine-based nuclear capability,<sup>40</sup> Macmillan ensured his nations independent nuclear deterrence in the face of external adversaries for years to come, strengthened the kingdoms status in the international arena as a global power, and safeguarded close political and military connections with the most powerful country in the world – the United States.<sup>41</sup>

As part of the agreement, the British provided the Americans with a forward naval base in Holy Loch, Scotland, for US Polaris submarines. In February 1968, the British had their first test launch of the Polaris A-3 class missile from the British Resolution-class submarine in the Atlantic Ocean. The missile was fired to a range of thousands of kilometers and hit its intended target, marking the entrance of the Polaris into service in the Royal Navy and the shift of responsibility for UK nuclear deterrence away from the Royal Air Force and onto the Royal Navy.<sup>42</sup> Later, in the 1990s, the United States provided the United Kingdom with

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<sup>39</sup> Richard E. Neustadt, 2018, *Report to JFK: The Skybolt Crisis in Perspective*, Cornell University Press.

<sup>40</sup> In the 1970s, the British tried to independently develop alternate dividing warheads for the Polaris missile in the Chevaline project, but they were very expensive relative to the operational benefit they could provide, and so this route was abandoned.

<sup>41</sup> Before the Polaris, the British doubted the US ability to provide a nuclear umbrella for them should the Soviets attack London, risking cities such as New York or Washington. N. J. Wheeler, "[British Nuclear Weapons and Anglo-American Relations, 1945–1954](#)", *International Affairs* 62, no. 1 (1985): 71–86.

<sup>42</sup> British strategy was continuous at sea deterrence (CASD), i.e., at any given moment, there would be at least one submarine (of four in existence) equipped with nuclear ballistic missiles in strategic readiness somewhere deep in the ocean. The United Kingdom is the only nuclear power that relies exclusively on launching ballistic missiles with nuclear warheads from submarines. The other nuclear nations have other capabilities, such as ICBMs launched from sites on land and nuclear

Trident missiles, the next generation of the Polaris.<sup>43</sup> The Polaris and Trident missiles, which are top-secret, expensive, and technologically complicated, were sold only to the United Kingdom. While the Kennedy administration had plans to establish a multinational force of NATO members that would collaborate to crew the submarines equipped with the Polaris missile, these plans never came to fruition, partly because of UK opposition. There was also a suggestion to provide France with Polaris missiles, but this also came to naught.<sup>44</sup> Only the British were given this capability. No NATO member and no major non-NATO ally (MNNA) received it, even though making the Polaris capabilities available to other NATO members would have made a significant contribution to the United States during the Cold War by strengthening its deterrence against the Soviet threat.

## Conclusion

The establishment of AUKUS is a milestone in the rivalry between the United States and China. Not long after the US withdrawal from Afghanistan, US President Joe Biden continues the Pivot to Asia strategy, choosing the strategic approach that characterized President Barack Obama (under whom President Biden served as vice president): a joint multilateral regional approach to confront the Chinese threat to the Indo-Pacific region. After Brexit, the United Kingdom is working to position itself as a dominant player on the global map, adopting a foreign affairs and security policy of Global Britain in a Competitive Age, which includes preparing for a significant military confrontation. Despite its economic

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weapons aboard bombers, thus completing their nuclear triad. Strategically, the ability to launch nuclear weapons from submarines deep underwater is considered highly effective, because it is very difficult to locate submarines deep in the ocean, thus ensuring the survivability of that capability. "[The UKs Nuclear Deterrent: What You Need to Know](#)", GOV.UK, February 17, 2022.

<sup>43</sup> The US cruise missile Tomahawk BGM-109 also belongs to this category of strategic arms supplied to nations with which the United States has a special relationship.

<sup>44</sup> The French governments policy at that time, under the leadership of President Charles de Gaulle, was to develop European deterrence independently of the United States. Therefore, France viewed the UK move of building nuclear deterrence based and dependent on US technology as proof that the United Kingdom was not a European country and that its transatlantic connection was stronger than its affiliation with Europe. Consequently, de Gaulle vetoed the UKs entrance into the Common Market (as the EU was then known). Richard Davis, "[Why Did the General Do It? De Gaulle, Polaris and the French Veto of Britains Application to Join the Common Market](#)", *European History Quarterly*, 28, no. 3 (1998): 373–97. The US proposal to provide the Polaris missile to France and Frances rejection of it do not weaken the claim that special relationships lead to the supply of strategic weapons; on the contrary, they only strengthen it, as special relationships are mutual. The receiver of the strategic weapon develops dependence on the supplier and therefore both sides must view the relationship as deep and identity-based, beyond merely strategic considerations. While France is a close ally of the United State, it differs from the United Kingdom in this regard.

dependence on China, Australia is taking a step that makes it abundantly clear that it is in the US camp and is preparing militarily for the growing Chinese threat to the region. As expected, Chinas response has been to say this is a manifestation of a Cold War mentality and a step that only contributes to the development of a regional arms race.

The strategic significance of nuclear-powered submarines for the Australian navy is the ability to reach distant targets and remain there a long time in secret, while being armed with various weapons, including Tomahawk-type missiles capable of hitting Chinese targets with precision. The United States is already a partner in a regional alliance in Asia – the QUAD – with key nations involved, but AUKUS is a military partnership with more clearly defined objectives than simply strategic coordination among nations. AUKUS is unique because it is a military partnership among three nations with special relationships, the key axis of which is the supply of unique strategic weapons that are not being supplied to other allies. Despite its uniqueness, this sort of move occurred in the past under similar circumstances, and the common denominator is the special relationship between the strategic arms supplier and the recipient.

The comparison between AUKUS case and the Polaris case shows many recurring features. In both cases, there are: a clear threat by a revisionist power with a confrontational ideology (China and the Soviet Union, respectively); an example of international cooperation (trilateral now rather than bilateral then) in facing a regional threat; special relationships based on closeness of language, culture, and history; the technology is being provided to the country with which the supplier has a special relationship and not to other regional allies; the involvement of nuclear technologies of strategic importance (nuclear-powered submarines and ballistic missiles with nuclear warheads); and the receiving country providing a forward base of operations to the country supplying the unique technology. The AUKUS submarines emerged against a background of difficulties and problems with French submarines, while Polaris came into the world because of the Skybolt crisis, and so on. The pattern repeats itself and the level of threat in the rivalry between the leading superpowers increases. Each side will try to build itself up in different ways, including creating and strengthening alliances plus providing arms to those allies. In this context, the superpower that has a special relationship with another country will choose to supply only it with unique strategic weapons that will not be given to its other allies.

About six decades after the Polaris, we are witnessing a similar move, this time against a different power – China. On the brink of an inter-superpower rivalry or second Cold War, the United States and United Kingdom are undertaking a strategic move indicative of distinctions being made among different allies on the basis of a shared identity, culture, and values. Thus, beyond a realist analysis and considerations of creating alliances with potential partners of strategic value and strengthening them, we are witnessing



considerations aligned with constructivist understandings of identity and ideology when it comes to deciding on the supply of unique strategic weapons. Based on the historical example from the Cold War with the Soviet Union, we may presume that Australia will play a more important and integral role in the array of US alliances (just as the British stood out compared to the other European allies in the past). Such a scenario also reflects Australia's strategic location and especially its unique character in the region as a country with an Anglo-Saxon character surrounded by Oceanic and Asian peoples and cultures. Accordingly, we may expect an opportunity for Australia to upgrade its regional and global status; on the other hand, this will likely entail an economic cost in its dealings with China. The rise to power of the Labour Party in Australia, a party with more moderate positions regarding dealing with the Chinese threat than the previous ruling party, raises the question if the AUKUS initiative will be implemented and, if so, in what format. Possible changes in the US administration and the potential return of Trump to the Oval Office raise the same questions on the US side of the Pacific Ocean. Similarly, in the United Kingdom, the Tories are still in power but are suffering from political instability and an economic crisis, which might lead to a change there as well. Despite all the above, special relationships between nations are characterized by relative stability and are generally able to withstand these types of changes. Additionally, strategic projects of this magnitude are never likely to be cancelled. But only time will tell.<sup>45</sup>

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<sup>45</sup> This is what happened in the relationship between the United States and the United Kingdom, a classic case of special relationships. Their relationship has had its ups and downs, but joint strategic projects between the two were carried out (as demonstrated by the Polaris and the next generation Trident project). As I noted, a possible explanation is that the special relationship is not reserved to the upper echelon alone; it exists at all government and bureaucratic ranks and leaves a deep imprint affecting the entire political spectrum in both nations.



## **Section 2: The Russia-Ukraine War – Maritime Aspects**

Russia's invasion of Ukraine in late February 2022 transformed the international agenda. Russia assumed that its military was infinitely more powerful than Ukraine's and would defeat it easily and swiftly, but it soon discovered that this was untrue. The articles in this section focus on the maritime dimension of the war, where the Russian Navy enjoys an absolute advantage over its Ukrainian rival but nevertheless has largely failed and has even retreated to a safe area east of the Crimean Peninsula. This section presents a discussion by experts at the Maritime Policy and Strategy Research Center, followed by six articles about the Russian Navy's performance during the war; the significance of the new maritime doctrine that it issued in July 2022 but seems disconnected from the reality exposed by the war; the application of the 1936 Montreux Convention, concerning Turkey's management of the Turkish straits during the Russo-Ukrainian War; the impact of the war on maritime trade in the Black Sea and globally; the complicated opportunities facing Europe in its desire to find alternatives to the energy it imports from Russia; and the lessons that Iran has drawn from the war.



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## The Naval Campaign in the Russia-Ukraine War: A Roundtable Discussion

**Editors: Ayal Hayut-man and Ziv Rubinovitz**

On October 23, 2022, researchers from the Maritime Policy & Strategy Research Center at the University of Haifa held a roundtable discussion on the naval campaign in the Russia-Ukraine war, which began on February 24, 2022. Presented here is a summary of the main topics discussed and the participants' comments.

An appendix to this discussion is a table of (general and naval) notable milestones during the Russia-Ukraine war so far, prepared by Ido Gilad.

### Opening Remarks

Prof. **Shaul Chorev**, head of the Maritime Policy & Strategy Research Center, began by stating that the purpose of the roundtable is to analyze trends in the maritime campaign between Russia and Ukraine and discuss possible lessons regarding the nature of warfare in this context. Prof. Chorev noted that the maritime military operations carried out up to that point during the Russia-Ukraine war included amphibious operations, power projection from the sea using submarines, the closing of straits, UN-sponsored agreements regarding the supply of grains, Anti Access / Area Denial through mining, and more. The purpose of this discussion was brainstorming – not in order to determine right from wrong but to share various assessments and discuss them, to better understand the significance of these naval operations. In addition to the operations themselves, Prof. Chorev suggested discussing the large gap between doctrine and reality and its consequences. He offered the example of the publication of Russia's new naval doctrine in late July 2022, as combat was ongoing.<sup>1</sup> Prof. Chorev pointed out that such gaps between doctrines and reality on the battlefield can be observed when it comes to other navy doctrines as well. He mentioned the Israel Navy doctrine, which discusses its role as a force of a regional power, even though the Israel Navy is not ranked among the thirty-four leading naval forces in the world – as opposed, for example, to Egypt and Turkey which are included in this ranking.<sup>2</sup>

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<sup>1</sup> Russia's new naval doctrine is discussed at length in Tzevy Mirkin's article in this volume.

<sup>2</sup> Eli Sharvit and Dov Raz, "From 'Maritime Service' to Strategic Force: Some Thoughts on Naval Forces in 2048", *Ma'arachot*, 477 (2018), pp. 18-25 [Hebrew]. "Another aspect of the strategic context that must be taken into account is the use of naval forces as a fundamental factor in the State of Israel's concept of security, by projecting regional power", *ibid.*, p. 23.

## Presentations and Comments

Tzevy Mirkin described the sinking of the "*Moskva*", emphasizing the broad implications of this event. According to Mirkin, the sinking of the "*Moskva*", the Black Sea Fleet's flagship vessel, is probably the most significant blow Russia has suffered in its campaign in Ukraine, even compared to defeats on land, and especially given its symbolic significance. From its very first day, the "*Moskva*" became a symbol of the campaign and Russian military power, symbolizing a period that was perceived by many as the golden age of Russia's naval force. This defeat was even more humiliating given that Russia still does not perceive Ukraine as an equal military rival or even an independent state, which is the reason that Russia describes the war against Ukraine as a war against NATO.

According to Mirkin, the sinking of the "*Moskva*" is expected to affect the status of the Russian Navy, which has dealt with the sinking of smaller ships in the past, but never on this scale. As a result of this event, the navy's image was greatly damaged – a fact that is expected to affect internal power relations within the Russian army. This may also affect budget distribution. Mirkin noted that it is easy to write a doctrine stating the importance of building large ships, but when it comes to the actual distribution of funds, given the failure of the Russian Navy to defend this ship, the question as to why build more ships may arise.

Mirkin explained that although it is not the main reason, the sinking of the "*Moskva*" is one of the reasons Russia has been avoiding amphibious operations. The main reason is that it became clear very early on that Russia does not have enough troops to carry out such operations. Russia's entire marine force is made up of four brigades that do not have enough soldiers to capture Odesa. Furthermore, Russia tends to make use of marine forces to reinforce infantry forces; this was the case in Afghanistan, where paratroopers were widely utilized, as well as in Chechnya, where both paratroopers and marines were deployed. Similar actions were taken in the current campaign; when it became clear that Russia did not have enough trained forces on the ground, high-reputation units, such as paratroopers and marines, were used in infantry roles, contrary to their original purpose. The result was a great loss of personnel among marine forces, and of most of the experienced officers, especially in lower and middle ranks. According to Mirkin, this led to a situation in which there was no one to train new officers and as a result, Russia does not have enough men for amphibious operations, which became a lower priority – and now, after the sinking of the "*Moskva*", they are no longer technically possible.

At the same time, the Russian navy's involvement in the campaign was affected by the relationship between the ground forces and the naval forces' commanders. The ground

forces' unwillingness to allow naval admirals to take credit for success in combat led to the subordination of the marine forces to the ground forces.

According to Mirkin, it seems that there is no real connection between the new naval doctrine approved by President Putin on July 31 of this year,<sup>3</sup> and what is happening on the ground. As he noted, approval of a doctrine is a process that takes months, and it appears that the new naval doctrine was prepared before the war began. The doctrine itself does not mention the war, even in terms of the discussion of competence levels and so it seems that the publication of the naval doctrine was intended first and foremost to raise morale, but that its ties to reality are strictly coincidental, and not for the first time.

Ido Gilad presented key milestones in the naval campaign between Russia and Ukraine. Following Mirkin, Gilad noted that the state of the navy reflects the state of the Russian army in general: at the beginning, the Russian navy enjoyed objective advantages, emphasizing the order of forces and means, certainly compared to the Ukrainian navy, which received only about a fifth of the former Soviet Union's navy forces.<sup>4</sup> Significant Russian control of the Black Sea shores, including the Ukrainian shores, is evident in the Sea of Azov, Crimea, and Sevastopol, and consequently, on the western part of the coast – in the Gulf of Odesa (Figure 1), could be noted. Such physical and military data suggests that one could have assumed that Russia would gain a complete naval victory in the westernmost part of the Ukrainian coast. This is a relatively remote area, and the expectation from the Russian navy was that it would deepen Russia's grip on it; especially due to its deployment in Sevastopol as a forward outpost on the Crimean Peninsula. But in practice, the Russian blitz on February 24, 2022, failed, the attempt at a "knock out" did not bear fruit, and the use of "General Winter" (i.e., winter 2022) using oil and natural gas as weapons against the West, did not lead to significant outcomes. On the contrary, the Russian announcements, full of expectation, have not come to fruition, and all of the Russian forces, including the navy, are now digging in or even retreating.

As Gilad noted, in terms of the geophysical characteristics of the arena, Ukraine's coastline is 2,700 km long and makes up about half of its borders. The Ukrainian coastline can be divided into three main sub-regions – the Sea of Azov, the Crimean Peninsula, and the Gulf of Odesa – or into eight coastal strips. The estuaries of the rivers along the coast are used for maritime transport, and their control affects the entire Ukrainian trade and economy. The straits and Snake Island serve as a strategic stronghold that the Russian

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<sup>3</sup> "[The Russian Federation Naval Doctrine](#)", was approved on July 31, 2022, and published on the Russian President's official website.

<sup>4</sup> [Black Sea Fleet \(BSF\) – Post Soviet Division](#), *GlobalSecurity.org*, Retrieved December 2022.

navy tried to take over at the beginning of the campaign, which it led on the (relatively distant) western front, but without success.

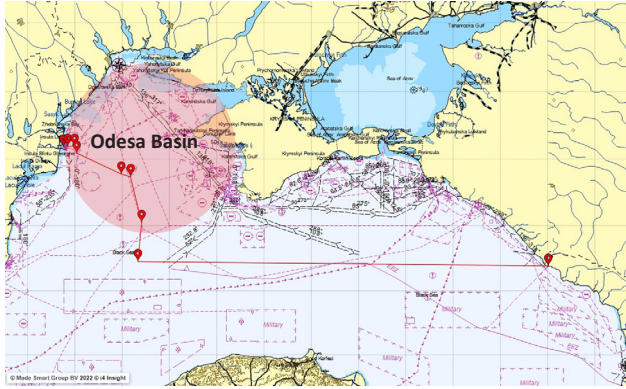


Figure 1: The Ukrainian coast, emphasis on the Odesa Basin, west of the Crimean Peninsula

When considering the specific timeline, other actors who joined the maritime activity should be noted: on the one hand, Turkey blocked the straits to Russian military vessels (in accordance with the Montreux Convention of 1936), but on the other hand, since July it has mediated the rescue of grain ships from the maritime blockade on shipping traffic to and from Ukrainian ports, which lasted for the preceding four months, a move which was named the "Grain Route". Iran also appeared on the scene by supplying explosive and unmanned aircraft, and probably also precision-guided missiles. Part of this supply is managed through the Caspian Sea.

According to Gilad, it seemed at the time that the Russian navy was withdrawing in face of the Ukrainian army, whose forces, mainly those on the ground, were diverting resources towards the Crimean Peninsula and represented a threat to the port of Sevastopol, which was attacked on October 29 by vessels and unmanned aerial vehicles operated by Ukraine. The Russian Navy's insecurity in Crimea and in particular in the port of Sevastopol led it to remain in more protected areas to the east of the Crimean Peninsula near and toward the port of Novorossiysk.

**Shlomo Guetta** added some general remarks. He noted that a few months after the war began on February 2022, it was still hard to see the forest for the trees, which made it difficult to form systemic insights. As he explained, perhaps only in a few years, after the dust settles, issues that are currently unclear will become clear – especially with publications by Western intelligence services or studies by analysts, based on intelligence data. As for the expectations from the Russian Navy, Guetta noted that it is not possible to know what had been written in the General Russian Command regarding its purpose and



tasks, but that impressions so far, lead to an estimation that the greater the expectations, the greater the disappointment.

As for the characteristics of the naval arena, Guetta noted the asymmetric characteristics of this war, in which the Russian navy holds great power in the Black Sea, compared to a rather inferior Ukrainian navy. This position led to hubris among Russian Black Sea Fleet commanders, which in turn led Russia to suffer significant losses – the most notable among these was the sinking of the "Moskva" cruiser. According to Guetta, this situation may remind us of other examples in which the inferior side gains unexpected advantages – such as the case of Israel in the Second Lebanon War, which did not consider some of the weapons that were in the possession of Hezbollah, a situation which led to overconfidence, as a result of which the INS *Hanit* was hit (fortunately there were only four casualties among the staff members).

Guetta added that western intelligence officials' and researchers' predictions, such as the prediction of an amphibious landing in the eastern sector (Mariupol) and the western sector (Odesa) of the Black Sea, did not come to be.<sup>5</sup> The option of a naval blockade from the Black Sea was also unfulfilled during the course of the war, due to diplomatic pressure. As Guetta explained, a blockade of this type, which threatens the world trade of food and other products, cannot remain confined to Russia and Ukraine, a fact that is important to remember.

Furthermore, Guetta noted the increasing use of unmanned airplanes and unmanned aerial vehicles. In the first months of the campaign, Turkish unmanned aircraft were the Ukrainian weapon of choice and in recent months, more and more Iranian unmanned aircraft have been spotted, raising the question of why a powerful country such as Russia needs the help of a smaller regional power in this area. There is even information according to which Iran will provide Russia with precision long-range surface-to-surface missiles of various types. Without underestimating Iran's capability, which should worry Israel, this seems to mean that Russia itself does not have significant capabilities when it comes to unmanned aircraft. As he noted, Iran's production capacity in this field also deserves attention and recently, it has come to light that Russia intends to locally produce hundreds of Iranian UAVs.<sup>6</sup>

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<sup>5</sup> For example: H. I. Sutton, "[6 Russian Warships And Submarine Now Entering Black Sea Towards Ukraine](#)", *Naval News*, February 8, 2022; as well as: Walker Mills and Timothy Heck, "[What Can We Learn about Amphibious Warfare from a Conflict that Has Had Very Little of it? A lot](#)", *Modern War Institute at West Point*, April 22, 2022.

<sup>6</sup> News agencies, "[Report: Iran and Russia Agreed on the Joint Production of Iranian Drones on Russian Territory](#)", *Maariv*, November 19, 2022.

As Guetta explained, in the future, in response to damage to surface vessels, the Russian navy may prioritize the submarine component – not only in terms of nuclear or nuclear-armed submarines but also on the conventional level, including improving the accuracy of cruise missiles and integrating the use of drones in submarines launchings. Furthermore, another aspect that has surfaced in recent weeks is a destructive weapon operated by the Ukrainians – an unmanned surface vessel. These were activated and caused damage to several Russian vessels in their own ports.<sup>7</sup>



Figure 2: An unmanned surface vehicle used by the Ukrainians against Russian navy vessels on November 2022<sup>8</sup>

In conclusion, Guetta predicted that historians or military researchers who will analyze the naval arena in this war will probably come to the conclusion that the Russian navy had no contribution whatsoever to the strategic aspect of the current campaign.

**Ido Gilad** added that, in his opinion, there is no need to guess the Russian Navy's objective since clearly, its role was to lead the southern front. **Shlomo Guetta** agreed but said that if this was the case, the navy did not meet this objective. **Tzevy Mirkin** pointed out that the main attack on the southern front was carried out through the ground forces from Crimea – an attack that was successful because of Ukrainian authorities' betrayal, and not due to the superiority of the Russian army. As he explained, the problem is that Russia itself did not understand what the navy's role was in this campaign and the ground forces generals did not want the navy to get the credit for their achievements.

**Mark Shipton** discussed the following question: Has the Russian navy gone through a process of adaptation regarding the continuously changing operational reality during

<sup>7</sup> "[Funds Raised for the Second Surface Drone for Ukraine in Lithuania](#)", *Мілітарний*, November 19, 2022.

<sup>8</sup> *Ibid.*

combat? As he noted, within this context, it is necessary to differentiate between the nature of war, which has remained unchanged throughout history and is an act of violence derived from political needs and human nature, and the characteristics of warfare, which are constantly changing as a result of technological and cultural development.<sup>9</sup> Shipton recalled Michael Howard's claim that history proves that, in most cases, military organizations do not accurately predict the characteristics of future warfare.<sup>10</sup> In this context, great military thinkers, such as Sun Tzu and Carl von Clausewitz, have emphasized the importance of **adaptation** as an essential attribute of military forces during combat.<sup>11</sup> This is also true in modern times. As Shipton explained, Murray and Farrell argue that war educates armies by forcing them to improve and sometimes even change their tactical and operational concepts; one of the most important traits of military organizations is the ability to quickly adapt to the tactical, strategic, and political conditions of war.<sup>12</sup> Shipton added that when discussing the question of whether the Russian navy underwent an adaptation process given the change in operational reality, several levels must be distinguished: a strategic level, a doctrinal level, and a tactical level. On a tactical level, adaptation did in fact take place; a key example of this is the confrontation with remotely manned aircraft (UAVs) and Ukrainian drones, especially the TB2, which proved to be a distinct threat to the Russian navy's ability to achieve its goals.<sup>13</sup> In this context, Shipton noted that the air defense systems on board Russian vessels operating in the Black Sea were unable to provide an adequate response to this threat. The solution, in this case, was the installation of a short- and medium-term air defense system – the TOR M2KM, which proved to be somewhat effective in dealing with this specified threat.<sup>14</sup>

**Prof. Chorev** pointed out that whenever there is a hit, it is explained as a technological problem, but one must ask if it is not also an operational problem; as he noted, it is important to understand that large vessels in asymmetric coastal warfare are at a disadvantage. **Mark Shipton** agreed but pointed out that if more modern vessels such as the *Admiral Gorshkov* or the *Steregushchy* class frigates with more advanced air defense

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<sup>9</sup> Carl Von Clausewitz, *On War*, London: Routledge (1968).

<sup>10</sup> Michael Howard, "[Military Science in an Age of Peace](#)", *The RUSI Journal*, 119, no. 1 (1974): 3–11.

<sup>11</sup> Sun Tzu, *The Art of War*, Translated by Thomas Cleary (1991).

<sup>12</sup> Williamson Murray, *Military Adaptation in War: With Fear of Change* (Cambridge: Cambridge University Press, 1991); Theo Farrell, "Improving in War: Military Adaptation and the British in Helmand Province, Afghanistan, 2006–2009," *Journal of Strategic Studies*, 33, no. 4 (2009): 567–594.

<sup>13</sup> Tayfun Özberk, "[Ukrainian TB2 Attacks on Russian Vessels May Mark a First in Naval Warfare](#)", *Sheperd Media*, May 6, 2022; Kateryna Panasiuk and Mykyta Vorobiov, "[The Drone That Won Ukrainian Hearts](#)", *CEPA*, August 29, 2022.

<sup>14</sup> Howard Altman and Tyler Rogoway, "[Ground-Based Tor SAM System Seen Strapped To Russian Black Sea Warship](#)", *The Drive*, June 7, 2022.

systems such as the 9K96 Poliment-Redut were used in theater,<sup>15</sup> then the results might be different.



Figure 3: A Vasily Bykov-class corvette with a TOR M2KM battery

Shipton offered another example of tactical adaptation – the growing shortage of naval standoff missiles against land targets, such as the 3M14 Kalibr cruise missile. This hampers the ability of the Russian navy to maintain a continuity of land strikes. The solution was to convert coastal missiles that exist in large quantities for attacks against land targets, in this case, P 800 Oniks missiles – Yakhont in the export version – powered by Bastion P batteries.<sup>16</sup> As Shipton explained, it is important to note that these missiles are not designed to operate effectively in a continental domain – the relatively small warhead and the lack of navigation and homing capabilities like those of TERCOM (Terrain contour matching – navigation based on topographic maps) makes these missiles particularly vulnerable to electronic warfare (EW).

A third example offered by Shipton was the ongoing attacks of Ukrainian forces against relatively small Russian navy patrol boats – mainly the Raptor class patrol boats, by unmanned aircraft and anti-tank missiles used by infantry. These attacks led to the loss of more than half of the patrol boats' order of battle forces in the Black Sea area,<sup>17</sup> and damaged the ability to defend port entrances and the Russian navy in general. The answer,

<sup>15</sup> Matteo Natalucci, "[Russia Wraps up Trials of Poliment-Redut SAM System on Project 22350 Frigates](#)", *Janes Defense News*, February 20, 2019.

<sup>16</sup> Ashish Dangwal, "[After Hypersonic Weapons, Russia Uses Bastion-P Missiles To Break Ukraine's Resistance, Destroy Its Morale](#)", *The Eurasian Times*, March 24, 2022.

<sup>17</sup> David Axe, "[Russia's Black Sea Fleet Started the War with Eight 'Raptor' Patrol Boats. It Might Have Three Left](#)", *Forbes*, May 9, 2022.

in this case, was the use of captured Ukrainian patrol boats,<sup>18</sup> such as the Gyrza-M. Meanwhile, the question of the operational effectiveness of such a move arises in view of the inadequate command and control systems, communication, and the ability to logistically support the technical operation of these vessels.



Figure 4: Bastion-P coastal missile batteries



Figure 5: Ukrainian Gyrza-M patrol boat captured by the Russian army. It is evident here that the Ukrainian patrol boat is now flying the Russian navy flag

<sup>18</sup> Matthew Moss, "[Russia Presses Captured Ukrainian Gunboats into Service](#)", *Overtdefense*, May 26, 2022.

Shipton concluded by saying that the Russian navy showed limited adaptation during the war and that this adaptation was confined to the tactical level, without any systemic, doctrinal thinking, or aspects of integrated multi-domain operations. In Shipton's estimation, this adaptation process is purely reactive instead of proactive; additionally, this process is most likely managed through a "bottom-up" process, by applying military hardware that does not fit the operational needs. The Russian army, and thereby also the navy, failed to quickly recognize the characteristics of warfare that included the extensive use of the Anti-Access-Area Denial (A2AD) strategy by the Ukrainian army, based on unmanned drones and anti-ship coastal missiles. Throughout the fighting, the Russian navy was unable to adapt its strategic thinking or the patterns of its operational activity to the type of war actually taking place.

Alex Grinberg added a few comments regarding the discussion on the sinking of the "*Moskva*". He noted that it was sunk by a Ukrainian "Neptune" anti-ship missile, a fact that the Russians are trying to conceal. He added that it is important to remember that even if this is asymmetric warfare, Ukraine still has marines, missiles, vessels, unmanned aerial vehicles, and air defense. As he explained, Ukraine was the center of the Soviet Union's air defense, and these capabilities were maintained, leading to a lack of activity by the Russian Air Force in Ukrainian skies. Furthermore, the Ukrainians instigated deep reforms in their army, navy, and intelligence forces, the results of which are evident on the ground. The methods of command and warfare adopted by Ukraine are completely Western and quite different from the Russian methods. Although the Russians regard this campaign as a war against NATO forces, this does not 'translate' and will not translate into drawing conclusions in the maritime domain.

Grinberg added that it should be understood that the lack of coordination and integration between forces is deeply rooted in the Russian army; even in the Red Army, there was no real doctrinal discussion, only "manifesto" documents that praised the army's capabilities. As a result, a field commander who wishes to remain alive can improvise on a tactical level, but it cannot go further than this. The concept of coordination between different army forces was not developed or studied at any stage. After the sinking of the "*Moskva*", efforts were made to cover up what had happened but there was no attempt to learn lessons. Additionally, concerning the unmanned aerial vehicles obtained from Iran, Grinberg noted that it seems that such a capability has simply not been established in Russia, and it is difficult to suppose that this will change in light of the current organizational culture. Even if Russian leaders would have theoretically decided to carry out army reforms, it would be impossible to do so without fixing the entire Russian system, which is plagued by widespread corruption and lack of accountability. As opposed to the command in NATO armies and in Israel which is based on the autonomy and responsibility of soldiers

and junior officers, which largely reflects the character of Western and Israeli societies; it would be impossible to instill values of independence and personal responsibility in soldiers without considering the issues relevant to the rest of society.

As he explained, as of today, it can be determined that Russia's Black Sea fleet has completely lost its former capabilities, and it is clear that even nine months after the beginning of the war, the Russian navy is not involved in combat in Ukraine. Since September 2022, the Russian navy in the Black Sea has suffered further losses following a Ukrainian attack on the strategic Russian naval base of Sevastopol. Furthermore, according to Grinberg, the Ukrainian attack deserves special consideration since it is an attack carried out entirely by a large number of unmanned vessels.

## Discussion

**Prof. Chorev** pointed out that another issue that has not yet been discussed is the diplomatic-signaling role, such as in the case of withdrawing the submarine fleet and raising the level of nuclear alert – an issue that is under the authority of the highest political officials in Russia, although in the Russian navy – as in other countries – the operation of the submarines is the navy's responsibility. **Tzevy Mirkin** noted that it was too early for any final conclusions, but an interim conclusion may be that Russia relied significantly on the nuclear threat to prevent aid to Ukraine, but this did not bear fruit, as aid to Ukraine increased significantly over time.

Another topic that Prof. Chorev brought up was what naval warfare means in a world of information networks. As he noted, Russia managed to conceal the sinking of the "*Moskva*" for several days, something that would certainly not have been possible on land. This raises the question, what can be learned here about the ability to hide information in a marine domain?

**Tzevy Mirkin** added that all the discussions on the campaign between Russia and Ukraine return to a fundamental problem: a perception of admiration for the ability, cunning, resources, and Russian military capability. In a country that is in general crisis, every area is affected. As he explained, all of the famous Russian weapon systems were developed in the 1980s and early 1990s and no new weapon system was developed after 1992. Furthermore, it is not clear how the new submarines built by Russia in recent years differ from 1980s submarines. Russia needs Iran's assistance because it does not have electronic capabilities. Certain scientific fields were eliminated in the USSR in the late 1940s, during the struggle against "bourgeois science", and the Soviet Union (and later Russia) was never able to bridge the gap created as a result. Additionally, Russia has suffered from a brain drain since the 1970s; and problems of corruption and inefficient administration

must also be considered. As Mirkin explained, the main result of the war could be damage to the idea of Russian power – leading to the understanding that Russia holds power in terms of territory and length of its borders alone.

**Prof. Chorev** pointed out that despite these problems, in the 2014 campaign, Russia achieved distinct success. Mirkin replied that this success was due to the fact that no one was fighting Russia and that Ukraine did not receive any outside support. Russia assumed that this would be the case this time as well, which testifies to its intelligence capabilities – that is to say, Russia does not understand any of its neighboring countries, and still sees them as semi-colonies. Additionally, in 2014 Russia was also defeated in Mariupol by volunteer battalions; and when encountering real opposition, its level of success was significantly lower. Furthermore, in 2008, a whole Russian field army needed four days to push the Georgian army from positions in South Ossetia, and their communication and reporting systems did not work properly – this could not be considered a success. Even in the current campaign, the high percentage of losses among battalion and division commanders is due to the fact that they have to physically reach the front to understand what is happening there.

**Mark Shipton** pointed out that it is necessary to distinguish between military power in terms of numerical and qualitative aspects and how military power is used. In his opinion, following the war, future studies of military power will focus more significantly on the way in which military power is used during combat (doctrine, the degree of multi-armed integration, command and control capabilities, and tactics), as dramatically affecting the ability to achieve operational goals and objectives.

In response to Mirkin, **Ido Gilad** said that there are several levels that need to be distinguished: strategic, operative, and tactical. Furthermore, Israel's power is certainly not comparable to Russia; for this reason, when Israel looks at Russia; its perspective is different and is mainly influenced by regional considerations, such as the importance it attaches to Russia's actions on nearby fronts like Syria and Iran. At the strategic level, it is also impossible to ignore Putin's "achievements" which led, for example, to global inflation and the way he managed to use the energy threat.

**Mirkin** said in response that the energy threat did not lead to the prevention of aid to Ukraine as it was intended. **Gilad** replied that this is apparent in hindsight but that it is important to understand what Putin's Russia originally wanted to achieve. Mirkin replied that the question is not what Russia wanted to achieve, but how successful it was in achieving its goals. As he explained, the Russian media has been reporting on European citizens freezing to death in the winter, and there are people in Moscow who believe this. Gilad noted that Russia apparently managed to sabotage the Nord-Stream pipelines and



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succeeded in blocking Ukraine's ports, although it must be said that this was done with the help of Ukraine itself, which mined its ports and the sea routes to them for defensive purposes.

At this point, **Prof. Chorev** wished to focus the discussion on the military-naval aspect, which also holds open questions. As he noted, specifically, one must ask: in the current combat route – an asymmetric campaign on the coast and an attempt to occupy territory – is the navy's role limited from the outset, and should expectations be correspondingly low?

**Tzevy Mirkin** replied that before the war began, Russia concentrated forces from three fleets in the Black Sea: the marine forces that were positioned in the Black Sea were brought over from the Baltic Sea and the Pacific Ocean; This was done due to local conflict, and even with this concentration of forces, the level of success in the naval arena was very limited. Russia was unable to carry out any amphibious operations and lost its skilled marine order of forces. Furthermore, after the sinking of the "*Moskva*," the navy retreated to a defensive position. This is expected to affect the distribution of resources and budget later on because the Russian navy became a de facto coast guard.

**Ziv Rubinovitz** noted that the sea was ultimately a secondary arena in the current campaign. **Prof. Chorev** said that this is an important issue to address when it comes not to a remote island like the Falklands, but to coastal combat that is mainly decided on land. This is also relevant in the context of the Israeli Navy, which is currently discussing the question of landing.

**Alex Grinberg** agreed with most of the points made by Prof. Chorev but added that Russian conduct has failed on all of these levels. He added that historically, Russian intelligence has always failed to assess strategic situations because it is required to provide a picture that matches the positions of Russian leadership.<sup>19</sup> Russia intended to conquer Ukraine and was not preparing for war but planned to install a puppet regime. In this sense, Russia is a country with no strategic planning, which is now trying to improvise to get out of the situation in which it found itself. Grinberg added that the Russian sabotage of Nord Stream was tactically successful but strengthened the conclusion in the West that it is necessary to find a substitute for Russian gas.<sup>20</sup> Regarding the involvement of foreign navies, he said that it is important to set boundaries for Russian operations in other arenas, such as the

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<sup>19</sup> Christopher Andrew, "[Intelligence Analysis Needs to Look Backwards Before Looking Forward](#)", *History and Policy*, June 1, 2004.

<sup>20</sup> Sergey Vakulenko, "[Shutting Down Nord Stream Marks The Point Of No Return For Russian Gas](#)", *Seeking Alpha*, September 8, 2022.

Mediterranean Sea because the lack of boundaries will encourage Russia to take more aggressive actions.

In view of the damage to the two gas pipelines in the Baltic Sea, **Prof. Chorev** brought up the vulnerability of the underwater communication cables and wondered if there is not a weakness here for Israel that should be examined.

**Shlomo Guetta** said that if it is possible to speak in terms of a tactical, operative, or strategic achievement, then the Russian naval forces apparently failed and did not achieve their goals on all three levels. He explained that it is not yet possible to determine what conclusions can be drawn from this for the future, but from past experience recommended basing conclusions on future insights to be analyzed and presented by Western intelligence services, and the British and German intelligence services in particular.

Regarding the specific issue of an Israeli landing option, Guetta said that we should stop basking in the operational success of the Awali landing in Operation Peace for Galilee (the 1982 Lebanon War), which was carried out on an unthreatened coast. In his opinion, in a case of a landing on the Lebanese or Syrian coasts today, there is no assurance that threats against vessels will be completely eliminated. Such a threat could, of course, manifest with the use of dedicated coastal missiles, as well as rockets and surface-to-surface missiles with accurate warheads, unmanned and armed aircraft, and vessels. Additionally, the use of naval mines on potential landing coasts should not be ruled out. Guetta added that a hit to a landing craft with hundreds of soldiers and armored vehicles would be disastrous and would offer the enemy an opportunity for a "victory image". Furthermore, he suggested that in regard to the possibility of hitting underwater communication lines, we need to observe and analyze the capabilities of the concrete naval enemies Israel is facing – that is to say, Hezbollah and Iran – in this regard, including threats to the infrastructure of Underwater gas pipelines. He also noted that in addition to this, regarding gas drilling production facilities in the middle of the sea, there is no doubt that the naval enemy has the capability.

In response to Mirkin and Grinberg, **Ido Gilad** stated that Russia has proven maritime operational capabilities, and while it is important not to exaggerate them, it is also important not to ignore them, but to assess each case independently.

**Prof. Chorev** emphasized that this document should discuss lessons learned, and allows not only for conclusive statements but also for questions, requiring us to follow the developments in combat from doctrinal, technological, and organizational aspects and allowing for continuous discussion.

## Appendix: Table of Prominent (Naval and General) Milestones in the Russia-Ukraine War

*Ido Gilad*

Date	General Event/Naval Event
Mid-March 2021	The Black Sea: an extensive naval maneuver (6 submarines, the <i>Moskva</i> frigate – Slava model, other vessels and aircraft).
The end of October 2021	Extensive vessel maneuver.
Late 2021	Reinforcement of 6 landing ships (from the Northern and Baltic fleets).
December 2021 – January 2022	Reports of an extensive naval maneuver and concentration of vessels in the Black Sea.
February 24, 2022 – the onset of the "Special Military Operation"	The onset of the invasion in Ukraine (four axes of progress): from the north – from Belarus toward Kyiv; from the northeast – toward Kharkov and Sumy; from the southeast – toward Luhansk and Donetsk; from the south – mainly from Crimea toward Kherson. The Snake Island incident led by the " <i>Moskva</i> ", intentions to land in Odesa + blockade of Ukrainian ports.
February 26, 2022	A successful amphibious landing in Mariupol versus a failed landing in Odesa. Naval mining in the Gulf of Odesa + probable drifting to Romania + Dardanelles (Ukrainian!? / Russian?).
February 28, 2022	Turkey announces strict sailing in the straits – according to the Montreux Convention (only military vessels registered in the Black Sea are allowed to pass north).
March 7, 2022	Artillery hit to a Russian patrol ship that later returned to Sevastopol.
The end of March 2022	Announcing the end of the special operation and focus on taking control over the Don Bass districts (Southeast). The Kyiv district was abandoned – emphasis shifted to the southern front – to isolate Ukraine from the sea up to the Moldovan border (in the west), a total of 2,782 km of coast. Deputy Commander of the Black Sea Fleet – Admiral Paliy was killed in Mariupol. A signal for a possibility (!) of integrating a (tactical) nuclear threat from Russia.
April 13–14, 2022	The attack on the flagship " <i>Moskva</i> " – Slava class (a Russian governmental symbol) by the NEPTUNE (Harponsky – compatible with KH-35) missiles involving drones.
April 21, 2022	A Russian takeover of the coast of the Sea of Azov.
April 30, 2022	Attacking infrastructure and seaports (Odesa) with cruise missiles – 30 were launched from Crimea.
The beginning of May 2022	Drone hits of 'Raptor' guard boats and the 'Serena'-class landing craft.
May 12, 2022	A hit near Snake Island by a supply tanker " <i>Bobrov</i> ."
May 15, 2022	Launching 4 Russian caliber missiles from submarines (!?) in the Black Sea – toward infrastructure targets in the Lviv area.
June 17, 2022	Coastal missile hits a tug boat.
July 8, 2022	Turkey brokered the opening of a shipping corridor to export grain.
July 9, 2022	Airstrike on the Russian Navy at Crimea Saki Air Base.

Date	General Event/Naval Event
July 31, 2022	Publication of an updated Russian naval doctrine (noting the Mediterranean, Black and Caspian seas as areas of special importance – some of them are therefore relevant to the combat area on the front of the special operation being conducted in Ukraine). Annual Navy Day celebration.
July 31, 2022	A drone hit of the naval headquarters in Sevastopol.
Late July 2022	The concentration of surface vessels in the Adriatic Sea (including 2 Udeloi ships) in front of the American aircraft carrier 'Truman' and 3 Italian Navy surface ships.
August 17, 2022	The impeachment (?) of the Black Sea Fleet commander and the appointment of Vice Admiral Sokolov.
August 30, 2022	Attack on the Russian naval headquarters in Sevastopol with a Ukrainian unmanned aerial vehicle (UAV).
September 21, 2022	Expanding the mobilization of the reserves (30,000) + announcing the feasibility of using nuclear power. Integration of Iranian drones (Mohajer-6.(?)
September 26, 2022	Locating a Ukrainian unmanned aerial vehicle (UAV) in the Sevastopol area.
Late September 2022	Evacuation of K submarines from Sevastopol. Underwater damage to the Nord Stream pipelines (in the Baltic Sea). Annexation of four Donbas (eastern) districts to Russia (15% of Ukraine's territory).
Mid-October 2022	Attacks of exploding drones made in Iran, an expression of the serious threat as a result of the tightening alliance between them.
October 21, 2022	Ukraine's claim of intentions to blow up the dam on the Dnieper River.
October 25, 2022	Fear of a use of a 'dirty bomb'. Putin's claim that a special operation requires a 'special measure.'
October 28, 2022	Crimea bridge explosion (a symbol of Russian rule).
October 29, 2022	An attack by 7 unmanned aerial vehicles (of the model located in early October) in the Crimean area of at least two Russian Navy ships in Sevastopol, including the destroyer <i>Admiral Makarov</i> (replacing the <i>Moskva</i> -the flagship of the Black Sea Fleet, which was sunk in April). During the attack, 9 unmanned aerial vehicles were also synchronized from the air. The targets were inside and outside the port. In response, Russia announced its withdrawal (for two days) from the shipping corridor agreement for the export of grain (which was originally valid until November 15, 2022). Turkey mediated this agreement and saw to its implementation, which means turning food into a weapon in Russia's hands, and Russia's possible damage to vessels and civilian shipping movements in the Black Sea.
November 8, 2022	An attack in Novorossiysk using drones. In practice, of a fuel terminal south of the military port itself.

Legend:

Maritime events before the operation

General events on land

General events with Turkish involvement

General events with Iranian involvement

Maritime events

## The Russian Navy and the War in Ukraine

*Ido Gilad*

Up until the onset of the war in Ukraine (on February 24, 2022), Russian President Vladimir Putin perceived Russia's maritime strategy to be a significant factor affecting the Russian global hold. A greater maritime domain meant a decisive factor in the country's economic and social advancement. The Russian Navy in precise has a great executive control over this domain. In the Black Sea arena Russian Navy had been considered as the stable and powerful force, especially compared to the Ukrainian Navy, which was considered weaker.

The Russian Navy's involvement in the war in Ukraine (defined by Russia as a "special operation"), intended in its initial planning stages and along the first phase of combat (which lasted for roughly 50 days), to be an integral part of the Russian campaign. The fleet's strengths led to a successful contribution to the campaign on the "southern" front, which became part of the overall campaign. In this context, the Russian navy was expected to play a central role in defeating the Ukrainian navy.

The Russian Navy's advantages were essentially based on a superior alignment of forces in the face of its Ukrainian counterpart's shortcomings. When the former Soviet Black Sea fleet was divided up (after negotiations lasting until 2007), Ukraine received only approximately a fifth of the naval vessels in question. Additionally, the Russian navy on the "southern" front relied on renewed control of the Port of Sevastopol (after the annexation of Crimea by the Russian Federation in 2014). This control of the Crimean Peninsula thus extended the considerable Russian control over eastern territories on the Ukrainian coast, especially in light of the Russian control of the Kerch Strait – a chokepoint connecting the Black Sea to the Sea of Azov. A bridge built by Russia over this strait (opened in 2018) was a symbol of Russia's sovereignty over Crimea, and another step on the road to realizing its ambitions to take complete control of Ukraine. After the initial attack in 2022, the Russian Navy was tasked with completing the Russian takeover of the entire Ukrainian coast, particularly in the west, from the Gulf of Odesa to the estuary of the Danube in the south (on the Moldova-Romania border).

The Russian naval forces' successful advancements in combat were halted after 50 days mainly due to the surprising sinking of the Slava-class "*Moskva*" cruiser, the Black Sea Fleet's flagship vessel (on April 13, 2022). Until the sinking of the "*Moskva*", the Russian navy dominated the Black Sea, particularly through a naval blockade. This blockade resulted in an almost complete stoppage of commercial shipping activity from and to Ukrainian ports. This move affected the global food and raw materials market and has additional global implications, including energy-related issues – which soon affected

the increase in global market prices, transportation, shipping insurance, inflation, and the world economy. In this context, additional political and military implications such as restrictions on navigation in the Turkish Straits, as well as the involvement of other international forces (such as Iran), became evident.

The port of Odesa (in western Ukraine), being the home port for the Ukrainian Navy, was one of the blockade's key targets and under threats of a Russian attack, including attacks on civilian infrastructures. The Ukrainian fear of a Russian takeover of the city of Odesa and its port led to defensive measures on their part. These included the scuttling of a Krivak-III class frigate in order to prevent its capture by the Russian Navy.

It is therefore evident that in the first phase of combat, the expectation from the Russian Navy was to serve as a forward vanguard force in the maritime and coastal context at the west of the "southern" front as part of the overall campaign. The completion of the takeover of this western area by Russia could have allowed it the potential for decisive control over most of the Ukrainian coastal areas: the Crimean Peninsula coasts (since 2014), as well as the western shores of the Sea of Azov. Russian control of these areas, even before the beginning of the campaign in Ukraine, offered it a hold, in practice, on about two-thirds of the Ukrainian coastline (about 2,700 km, see Figure 1). The completion of Russia's takeover of the entire coast was therefore planned to be realized through the navy: in the maritime context (at first) and the coasts of the Gulf of Odesa and the western arena as a whole (as a continuation of this). It seems that the responsibility of handling this area was entrusted mainly to the Russian Navy at the very beginning of the campaign; this is partly related to the Russian Navy advantage of being based in the nearby port of Sevastopol.

The dominance of Russian naval activity has, as mentioned, largely been undercut since mid-April following the sinking of the "*Moskva*" cruiser. After this event, a Russian understanding was formed that the Russian navy does not have sufficient ability to respond to the determination of Ukrainian forces, which are equipped with technological means and relied on Western knowledge. In this context, the commander of the Black Sea Fleet was dismissed (in mid-August), while his deputy was killed (earlier in late March). Furthermore, the main naval force retreated toward Russian shores in the eastern Black Sea, particularly to the port of Novorossiysk and to the protectorate southeast of the Crimean Peninsula. This move intensified as the Ukrainian forces advanced and threatened from the Ukrainian coast, toward the center of the Crimea region, especially on the western coast, near the port of Sevastopol.

Thus, the Russian Navy, together with land forces and additional Russian army forces, found themselves withdrawing (since the end of summer 2022) in face of Ukrainian

attacks aided by the West (mainly indirectly and directly as well). However, it is clear that nothing is yet determined regarding the results of the campaign in question, and that we do not yet know when it will end.



Figure 1: Map of the Ukrainian coast, the "southern" Russian front<sup>1</sup>

## Background

Putin's reign, up until the attack against Ukraine (on February 24, 2022), was characterized by the Russian president's efforts to promote Russia's position of power in the world in general, including in various maritime domains. It is possible that Putin's childhood in the port city of Saint Petersburg, which was founded (in the 17th century) by Tsar Peter the Great – founder of the Russian Navy, shaped Putin's (psychological?) belief in the great importance of the sea for Russia, and in the power of the Russian Navy in particular. Great ambitions shape the Russian maritime policy, which works well with Putin's economic worldview. This is a distinct foundation when it comes to Russia's strategic strength, securing the regime's stability and continuity, and in the context of the freedom of action it has in the international arena.<sup>2</sup> Putin has identified a number of constitutive moves related

<sup>1</sup> Source: [Map of Ukraine with Cities](#), Wikimedia common, update March 6, 2022

<sup>2</sup> Richard Connolly, and Michael Kofman, "[What Putin Learned from the Soviet Collapse: To Preserve Its Global Ambitions, Russia Is Managing Its Economic Limits](#)", *Foreign Affairs*, December 29, 2021.

to the maritime domain and has sought to leverage these to bring about the utilization, development and enhancement of the economic infrastructures at sea. A few of these projects were supported by Putin personally, though some of them were only partially implemented (on a civil or military level). Among the clear examples of development, we can refer to the development of the Northern Arctic Ocean, which can be seen as a high priority resource when it comes to Russia's maritime interests. This intention expresses an aspiration to bring about the utilization and extraction of natural resources from the sea. This is in view of global climate change, which, in recent years, has accelerated, causing a decline in ice sheets. This is how the opportunity to capture the 'Northern Sea Route' also known as the "Russian Suez Canal" was seized. The development of this route was planned to be implemented in two main stages: the immediate and first was based on the takeover of the shipping route with a fleet of Russian icebreakers (approximately 50 vessels), some of which are nuclear powered. Several vessels intended for this purpose are still under construction. Pursuing this course of action involves high costs. The second phase is meant to be implemented later and will be based on the expected melting of the glaciers, which will allow over-exploitation of the resources in the area, alongside the usage of the northern shipping route as a resource in itself, connecting East Asia to Northern Europe (with relative savings compared to the use of the existing route – through the Suez Canal). Both phases involve the establishment and enhancement of the Russian infrastructure along the coasts of the Arctic domain, which has been under vigorous development in recent years. The northern front, with an emphasis on the Arctic Sea, was also defined as "vital" in the updated Russian Naval doctrine (published in late July 2022, around the celebration of Russian Navy Day).<sup>3</sup> The development of this domain included the infrastructural-energy integration of floating power plants (with nuclear propulsion) that had been placed or were intended to be placed in the area and to enable its full function. Among the other projects implemented in the Northern domain is the laying of the pipeline system for supplying gas to Europe ("Nord-Stream 2") on the ocean floor, even though this system was sabotaged at the end of September 2022, as a consequence of the war in Ukraine.<sup>4</sup> The peak of military training activity and weapon tests in the northern arena is attributed to the "Umka-21" maneuver that took place in March 2021, during which an attack was conducted by three Russian submarines at the same time.<sup>5</sup>

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<sup>3</sup> [Official Internet portal of legal information Electronic passport of the Federal State Mass media registration certificate No. FS77-47467 information Service No. FS77110096](#). Retrieved December 8, 2022.

<sup>4</sup> Matthew Sparkes. "[Nord Stream gas pipe explosions were sabotage, say investigators](#)", *NewScientist*, November 18, 2022.

<sup>5</sup> TASS, "[Arctic Exercise Umka-2021 Shows Russian SSBN Can Deliver Massive Strike](#)", *Naval News*, April 10, 2021.



Russian military power has been somewhat modernized in recent years, although this development has proved to be limited in the context of the war with Ukraine. Such developments were partially based on previous operational experience of Russian forces over the years (for example: in Afghanistan 1979-1989, Chechnya 2000, Georgia and Abkhazia 2008, Ukraine, including Crimea 2014, Donbas and Luhansk 2014, Syria 2015, Armenia 2021). However, this experience proved to be of only limited significance in its implications for the current campaign in Ukraine. It is possible that the Russian experience in the previous military operations, many of which were carried out without significant interference or intervention on the part of other countries, gave Russia even more motivation to begin the current move against Ukraine. In addition to this, it is possible that the American withdrawal from Afghanistan in August 2021, interpreted by Russia as a weakness on the part of the United States and the West, added to and contributed to the Russian move in Ukraine.

Differences in development and equipment in the various branches of the Russian army were evident even before the campaign in Ukraine began. The Navy, as a strategic force that was supposed to enable the implementation of the global-economic moves in the spirit of the aforementioned Putin initiatives, was developed in parallel to the investment in aviation and space forces and was therefore equipped, or at least so it was claimed, with platforms and warfare means. Putin has demonstrated personal involvement and concern for some of these processes and has led them. On July 31, 2022, Putin claimed as part of Russian Navy Day, that supersonic "Zircon" missiles "will be operationally integrated by the navy in the near future".<sup>6</sup> The integration of these missiles is also expected to be included in the Russian nuclear submarines' weapon arsenal. Thus, the fleet was equipped with long-range precision cruise missiles (LACM) and ground-guided missiles (RS-SS-N-30A Sagaris). Some of these were installed on ground platforms, submarines and first-line surface vessels. The High Command in Moscow and in the Naval Headquarters in St. Petersburg made sure to establish an Anti-Access/Area Denial (A2/AD) ground infrastructure and holding centers on the various coasts. Thus, for example, the Russians gained control of the eastern Mediterranean Sea on the Syrian coast, during which defense measures against adversaries were integrated as well, based on establishing control in the Tartous port, the Khmeimim air base to the north, and in the other outposts that Russia maintained on the Syrian coast. In addition to this, counterattack capabilities of LACM missiles were developed by submarines and field units from the Caspian Sea and the eastern Mediterranean. 'Kalibr' missiles were incorporated in project 21631 of M-Buyan corvettes as well, as in project 22800 of Karakurt corvettes. Project 06363

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<sup>6</sup> Official Russian Internet Portal of Legal Information, Ibid.

improved Kilo submarines were also fitted with these missiles, as well as Project 885/Project 08851 Yasan/Yasan-M missile-armed submarines.<sup>7</sup>

As part of its modernization attempts, Russia has aimed to promote the integration of advanced weapons. Some of these were even used in pioneering combat operations in the war in Ukraine. This is how a hypersonic missile from the Kinzhal system was launched for the first time (on March 18) against the Ukrainian forces' depot of land to air missiles (SAM).<sup>8</sup> It has been claimed that this accurate hit resulted in ten deaths. Since the beginning of the war, Russia, and Putin himself in a number of cases, have voiced threats (and warnings) about Russia's possible use of nuclear weapons. It should be noted that beyond these measures that have long been at its disposal, Russia has, in recent years, led an effort to promote plans to modernize its nuclear weapons with the intention of incorporating them into a variety of land, air, and naval launchers.<sup>9</sup> This was probably the case in the construction of Borei class-A submarines (Project 955A) with nuclear propulsion that were in relatively advanced development stages and could carry Bulba missiles. The *Belgorod* (K-329) and the *Khabarovsk* (project 09851) submarines were also designed to carry Poseidon autonomous nuclear torpedoes.<sup>10</sup> On March 22, 2022, the President of the United States, Joe Biden, revealed Putin's possible intentions to also use chemical and biological means.<sup>11</sup>

In conclusion, it should be emphasized that the annexation of the Crimean Peninsula (2014) significantly improved Russia's military naval and coastal position in the Black Sea. Russia gained the potential to widely deploy controllers in Crimea as well as to improve coastal systems and control the Sea of Azov. As mentioned above, the Black Sea Fleet benefits from a relatively accelerated development; intended to allow Russia to impose a naval blockade, in order to increase Russian control and maritime access to and from Ukraine, although the implementation of this move proved to be limited on a political, economic and practical level.

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<sup>7</sup> James Hackett, Nick Childs, and Douglas Barrie, "[If New Looks could kill: Russia's military capability in 2022](#)", *IJSS*, February 15, 2022.

<sup>8</sup> Gareth Jennings, "[Ukraine Conflict: Russia Employs 'Hypersonic' Missile for First Time](#)", *Janes*, March 21, 2022.

<sup>9</sup> Maxim Strachak, "[Year 2021 in Review: The Results of Russia's Nuclear Weapons Modernization](#)", *Eurasia Daily Monitor*, 19:6, January 25, 2022.

<sup>10</sup> Thomas Nilsen, "[Russia's Nuclear Submarine Construction Reaches Post-Soviet High](#)", *The Barents Observer*, January 6, 2022; Thomas Nilsen, "[World's Longest Nuclear Submarine Handed Over to the Russian Navy](#)", *The Barents Observer*, July 8, 2022.

<sup>11</sup> Natalia Zinets and Pavel Polityuk, "[Russian Strikes Turning Mariupol into 'Ashes' as West Plans More Sanctions](#)", *Reuters*, March 22, 2022.

## The Campaign in Ukraine

The naval combat in Ukraine reflected Russia's original intentions. The entire range of activities that Russia has engaged in since the beginning of the campaign in Ukraine on non-naval fronts, has even been defined as war crimes against the citizens of Ukraine and seems to be inconsistent or reflect specific discretion. It is possible that this situation was due to either the campaign complications in the 'field' or miscalculated orders.<sup>12</sup>

The coastal and maritime control of the Black Sea and the Sea of Azov is a product of Russia's continuous long-lasting takeover of the area. This also has some influence on the Mediterranean as a whole, which has been under permanent Russian grip in recent years (for example: in Syria and Libya, and the development of civilian and semi-civilian outposts such as power plants in Egypt, Turkey and Algeria, as well as intentions in regard to Port Sudan). Alongside the investment in infrastructure, the deployment of military vessels, for example in the Adriatic Sea, has been renewed since July 2022.<sup>13</sup> Although over time it will be necessary to rely on technological aid and armaments delivered from the North Sea regions, since the passage – if only for supplies from the Black Sea – is blocked at the Turkish Straits, and the Mediterranean Sea – with an emphasis on Tartous – lacks sufficient infrastructure for the maintenance and supply of submarines, for example.<sup>14</sup> On the other hand, the presence of NATO fleets in this maritime area, with an emphasis on the Black Sea, including those based in countries such as Romania, Bulgaria, and even Turkey, which are members of the alliance, also affects the balance of forces in the entire maritime arena.

On the maritime level, the preliminary Russian takeover of more than half of the Ukrainian coast (which is over 2,700 km long) has, as mentioned, since 2014, surrounded the Crimean Peninsula, and since 2018 the Sea of Azov area. The inauguration of the longest bridge in Europe – the Kerch bridge (19 km) above the strait of the same name – connecting the Black Sea to the Sea of Azov – granted Russia full control over the passage of vessel traffic under the bridge, in the strait. Since the beginning of the war in Ukraine, the Sea of Azov, including Mariupol, its main port city, has been subjected to Russian offensive activity from the sea as well, similarly to the rest of the eastern Ukrainian coast.

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<sup>12</sup> James Holmes, "[The Question The World Is Asking: Is Vladimir Putin Rational ?](#)", *19fortyfive*, March 12, 2022.

<sup>13</sup> *Decode39*, "[The Russian Threat in the Med: Italy's Chief of Defence Speaking](#)", August 22, 2022.

<sup>14</sup> *Ibid*, as well as in Colleen Graffy, "[Who will control the Black Sea?](#)", *GIS*, October 11, 2022; H. I. Sutton, "[Russia Forced to Reduce Navy In Mediterranean As Ukraine War Drags On](#)", *Covert Shores*, August 24, 2022.

It is worth noting here that Russian control of the Sea of Azov provides full control over the (currently) exclusive navigation outlet, which connects the Caspian Sea with the Sea of Azov via the Volga and the Don Rivers (Figure 2). The Caspian Sea (in Russian zone) as well as the Sea of Azov and the Black Sea were defined as "vital" and "important" areas (respectively) in the revision of the Russian naval 2022 doctrine.<sup>15</sup>

It should be taken into account that Iran's involvement in helping Russia will increase the scope of maritime activity in the Caspian Sea routes as a whole, as well as in those of the Volga-Don, as a channel for transferring supplies to Russia. The war-oriented naval activity has an impact on the shipping traffic there, and this may also affect the continuation of shipping in the Black Sea and Mediterranean routes (while passing through the Turkish Straits). Not surprisingly, Putin himself inaugurated the Kerch Bridge, which due to its importance was significantly sabotaged (on October 8 2022), although navigation in the strait was not blocked as a result.

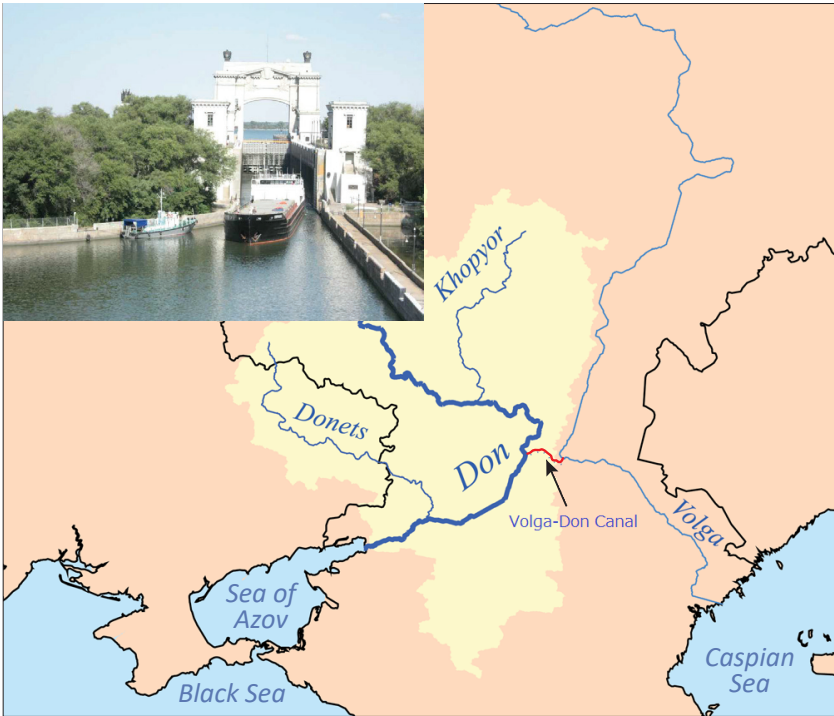


Figure 2: The shipping route connecting the Caspian Sea with the Sea of Azov and the Black Sea through the crossing of the Volga and Don rivers and the canal connecting them. In the picture is gate number 14 of the Volga-Don Canal

<sup>15</sup> Official Russian Internet Portal of Legal Information, Ibid.

## The Completion of Russian Hold or Control over Most of the Ukrainian Coast

As mentioned, the Russian control of the Ukrainian coast extended from the Don-Bass areas in the Russian sphere of influence adjacent to the Sea of Azov, approaching the Ukrainian coast on the Crimean Peninsula. These two sections of the Ukrainian coast make up about two-thirds of its total length, while the third part to the west is the Gulf of Odesa (Figure 3), and the coastline between the two deltas of the (northern) Dnieper and (southern) Danube rivers on the Moldovan border. The Ukrainian coast can be divided into three sub-areas as described above or alternatively into 8 segments made up of different shore segments.

The city and port of Odesa (in the west) dominate not only the sea to the southeast but also serve as an outlet for the Dnieper River north of Odesa, which leads to the important port city and shipyard, Mykolaiv.

The assembling of Russian naval forces on the eve of the outbreak of the campaign in Ukraine was probably intended to obtain naval and coastal control in this (more distant) western region. This is in view of the Russian Navy's advantages, since it has deployed forces in the Black Sea (since the end of December 2021).

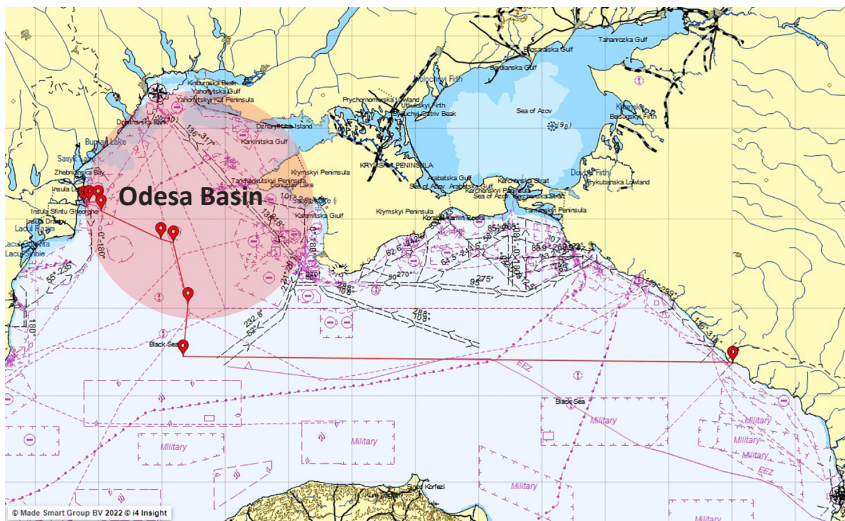


Figure 3: The Ukrainian coast, with emphasis on the basin of Odesa west of the Crimean Peninsula<sup>16</sup>

<sup>16</sup> Source: "[Russia – Ukraine War: Impact on Shipping](#)", *North, Industry News*, November 29, 2022.

The planned Russian control of the Ukrainian home port in Odesa and the maritime and coastal areas adjacent to it was supposed to be a symbol of the occupation of the Ukrainian government – since it is the home port of the opposing navy (which may serve as an analogy to Kiev – the country's capital).

The Russian deployment toward the western Ukrainian coast was therefore expected to lead to the finalizing of its control over the entire Ukrainian coast, up to the estuary of the Danube River. The implementation of this hypothetical situation was supposed to give Russia a strategic advantage in the entire Black Sea area, serving as a gateway from/to the eastern Mediterranean to the Indian and Pacific Oceans (via the Suez Canal) and the Atlantic Ocean (via the Strait of Gibraltar). However, the freedom of military navigation in the straits was limited by Turkey, which also maintains control regarding the safety of navigation and the transportation of cargo – with an emphasis on dangerous goods and cargo being shipped in these straits.

To the extent that the Ukrainian coast as a whole would have been under 'extensive' Russian control, there would have been the potential to establish the Russian borders in relation to the entire 'southern' front, vis-a-vis its (physical) neighbors in the Black Sea: Moldova and Romania, but also Bulgaria and Turkey.

For this reason, Russia made sure to demonstrate its control in the western Black Sea arena, as part of a pioneering act at the beginning of the campaign, while taking advantage of the navy to operate from its forward base in Sevastopol. This move included attempts at a Russian takeover of the Ukrainian outpost on Snake Island in the south of the basin in question (near the estuary of the Danube, on the Romanian border). That is to say, an outpost with strategic control over the navigation at a crucial junction in the southwestern area of the Black Sea, which would have improved the Russian hold in the front even more.

Additional naval actions that Russia initially took in order to deepen its control in the area also included ground attacks, firing Land Attack Cruise Kalibr Missiles (LACM) from surface vessels as well as submarines.<sup>17</sup> Along with these, naval maneuvers were carried out by a group of participating forces of first, second and third line vessels – which included 6 landing crafts, air means, stationary means on the coast, along with other hybrid weapons used by the navy, as well as the Russian army (including conventional weapons, cyber weapons, subversion and more). However, despite the concentration of

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<sup>17</sup> H. I. Sutton, "[Russian Submarines Launching Kalibr Cruise Missiles At Ukraine](#)", *Covert Shores*, April 21, 2022.

means for a naval landing in the Odesa area at the beginning of the campaign,<sup>18</sup> the move itself was not yet realized.

## Characteristics of the "Southern" Naval Campaign

A striking aspect of Russian activity on the "southern" front against Ukraine, in relation to the other combat fronts, is the fleet's combined naval and coastal capabilities. The Sea of Azov, the Black Sea and the Straits were defined as "important" to Russia, in the Russian naval doctrine, as (obviously) related to the very existence of the campaign in Ukraine.<sup>19</sup> This intention was therefore mainly attributed to the description of the activity near the shores of the Black Sea, the Sea of Azov, the central river basins which are centers for extensive maritime trade, such as the Dnieper and Dniester, the Volga-Don which also allows sailing to the Caspian Sea, and the Kerch and the Bosphorus Straits. The aforementioned Snake Island offers control over the Danube estuary in the southwest of the Black Sea. Even though the Kerch Bridge was attacked in early October, so far no significant effect of this event has been noted in regard to shipping activity in the strait. This situation may change, and if it does, civilian vessels may be damaged and shipping traffic may be disrupted. Such a precedent was set when Russia announced a change in its policy (on October 29), and its withdrawal (which lasted in practice for only two days) from the shipping arrangement concerning the 'grain export corridor' (implemented through Turkish mediation since the beginning of July 2022 – Figure 4). This change (and the pushing up of the end of the above arrangement period, originally scheduled for November 15) was due not only to the damage to the Kerch Bridge but also to the Ukrainian attack (on October 29) on the port of Sevastopol. Putin accused Ukraine of "exploiting" the 'grain corridor' route when carrying out that attack, which was based on unmanned platforms; vessel and aircraft activity was synchronized and resulted in damage to Russian platforms both inside and outside the port (see details below). However, after two days the grain corridor was reopened.<sup>20</sup>

Located along the entire Ukrainian coast (some 2,700 km long) are central ports and trade cities, which allow for the export of Ukrainian grains, raw materials and products, by way of maritime trade, including the shipyard industry itself, which manages the production of civilian as well as military vessels (dating back to the Soviet period). It

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<sup>18</sup> H. I. Sutton, "[Evidence of Russia's Planned Amphibious Landings in Ukraine](#)", *Covert Shores*, March 1, 2022.

<sup>19</sup> Official Russian Internet Portal of Legal Information, *Ibid*.

<sup>20</sup> "[Russia Says It's Suspending Participation in Grain Deal With Ukraine](#)", *New York Times*, October 29, 2022; "[Beacon on the Black Sea](#)", United Nations, Black Sea Grain Initiative Joint Coordination Centre, Retrieved December 18, 2022.

seems that the Ukrainians have been able to develop unmanned vessels as part of mainly self-manufactured weapons, as a response to the current needs, especially because the Ukrainian Navy is relatively small it did not possess many weapons at the beginning of the war. To this was also initially added the blockade of Ukrainian ports as well as the fear of a Russian takeover. The use of unmanned vessels, which due to their relatively small dimensions can be launched from a variety of positions and locations, is an alternative solution that has been successfully implemented, both for ports' closure and in view of the lack of other manned solutions in the possession of the Ukrainian Navy.



Figure 4: The grain corridor rout agreement as formulated in July 2022 between Russia, Ukraine, Turkey, and the UN<sup>21</sup>

Such an unmanned Ukrainian vessel was used in the western area of the Crimean Peninsula as early as September 26, 2022. On October 29, the Ukrainians used at least 7 similar devices, which attacked vessels in the Sevastopol area, and probably damaged the flagship of the Black Sea fleet, the "Admiral Makarov" destroyer (that replaced the "Moskva", which as mentioned, was sunk in April). A landing craft and another vessel, probably civilian, were also damaged. This attack is unique not only in the combination

<sup>21</sup> Source: "[Russia, Ukraine Sign Major Grain deal to Ease Food Crisis](#)", IAS Score, July 29, 2022.



of unmanned (sea and air) means, but also in the ability to synchronize their attack both outside and inside the port.<sup>22</sup> This move can be summed up as Ukraine's impressive identification of operational needs. It should be noted that on November 8, 2022, another attack was carried out in the Novorossiysk area, which was also attributed to an anti-aircraft missile that hit a coastal energy transportation terminal near the port.<sup>23</sup>



Figure 5: An unmanned Ukrainian vessel<sup>24</sup>

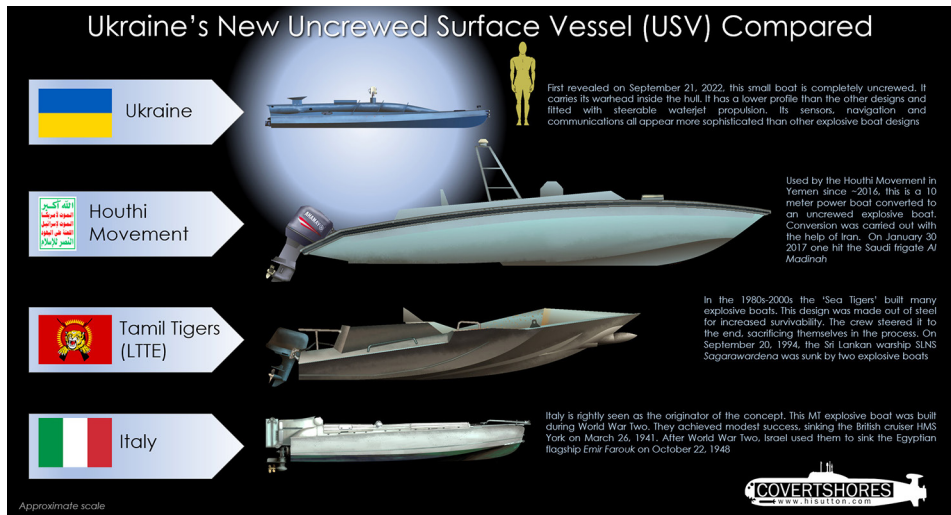


Figure 6: A comparison between the Ukrainian unmanned surface vehicles and other unmanned surface vehicles <sup>25</sup>

<sup>22</sup> H. I. Sutton, "[Why Ukraine's Remarkable Attack on Sevastopol Will Go Down In History](#)", *Naval News*, November 17, 2022; H. I. Sutton, "[Ukraine's New Drone Boats That Will Change Naval Warfare, Explained](#)", Video.

<sup>23</sup> H. I. Sutton, "[Ukraine's Maritime Drone Strikes Again: Reports Indicate Attack on Novorossiysk](#)", *Naval News*, November 18, 2022.

<sup>24</sup> H. I. Sutton, "[Ukraine's New USV Compared](#)", *Covert Shores*, September 22, 2022.

<sup>25</sup> *Ibid.*

## The Black Sea / the Significance of Ports and Infrastructure for Russia – Background

The location of the ports and infrastructure along the Ukrainian coast reflects the importance of Ukraine's accessibility to the sea throughout the year. Being aware of these factors, Russia planned that its actions in the 'southern' front would lead to territorial-coastal continuum. The expectation from the Russian navy to gain control over the entire western basin began on February 24 on Snake Island. Although operation on this island was a practical expression of the beginning of the campaign, in practice, the western coastal hold did not reach full realization for Russia, neither on Snake Island nor in the western region of the Ukrainian coast in general.

The beginning of the 'special operation' (as named by the Russians) during the winter (end of February) of 2022, probably intended to take advantage of the 'General Winter' factor. Apparently, the aim was to add pressure and influence on the consumers of Russian energy in Europe. In Russia's estimation reducing its supply of gas at the peak of consumption season was expected to provide in exchange some criticism and opposition to Russia's actions in Ukraine. Even though this assumption proved to be wrong during the previous winter, the main consequences were economic. The implications for the current winter are not yet clear, however predictions are not optimistic. Russian influence on maritime traffic was also evident, with an emphasis on trade in the Black Sea and the Ukrainian ports, allowing all year-round activities in terms of the weather. Such availability has been affected by other circumstances, for example, Russia's (temporary) withdrawal from the Grain Corridor Deal.

The Black Sea, as well as the Russian naval and coastal units deployed in it, has, in recent years, been nurtured by President Putin. His (personal) involvement also contributed to the equipping of the naval forces there, and to holding demonstrations of force (maneuvers) in which he participated. Thus, the Russian national interests that prioritized the Black Sea Fleet rightly established an expectation from this fleet for more control and influence in the region, and even more so in the context of the campaign in Ukraine.<sup>26</sup> This expectation was disappointed by the time the two fleet flagships: the "Moskva" cruiser and probably also the "Admiral Makarov" destroyer were sunk and damaged (respectively) during the fighting.

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<sup>26</sup> Ido Gilad, "[The Russian Navy – Central Trends in 2019 and their Implication in the Middle East](#)", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2019/20* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa), p. 3.

Additional possible background tying Russia and Putin personally to the Black Sea, might refer to the assets he has accumulated in the city of Sochi, the capital of the "Russian Riviera" on the Black Sea coast. This region in where Putin arranged for the hosting of the Winter Olympic Games there (2014). He has often spent time and hosted extensive political activities there in recent years. (It is possible that his personal fondness for the Black Sea can be seen as a parallel to another coastal area – of the northern Baltic Sea, in St. Petersburg, which also influenced him and is where he grew up).

## Maritime Aspects of the Campaign in Ukraine

### *The Geostrategic Maritime Aspect*

Russia's naval/coastal move was part of the overall campaign in Ukraine from the start. This fact caused Ukraine to hasten and raise arguments against Russia (as early as February 26), and turn them into an appeal to Turkey (a member of NATO), to exercise its right under the Montreux Convention (1936).<sup>27</sup> The treaty permits Turkey in times of war, or if Turkey recognizes a threat that could badly affect navigation, safety or security – to prevent sailing in the Turkish Straits, and in regard to military vessels categorically. Turkey's response did indeed lead to its exercise of control preventing the passage of military vessels. This caused the Russian fleet in the Black Sea to remain there, in effect blockaded. Without being able to reach the Mediterranean Sea for supplies, or vice versa – to gain assistance and reinforcements from other vessels that had to enter the Black Sea.

On the other hand, Turkey became an intermediary between the parties at war regarding the regulation of shipping in the 'grain corridor', the formation of which has made it possible since July 2022 to export grains from Ukraine. The Turkish involvement proved to be important again at the end of October, when Russia announced that it was withdrawing from the said arrangement, alleging that it had been violated by Ukraine while taking advantage of the shipping corridor in question to attack Russia with unmanned vessels on October 29. Two days later the deal was resumed.

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<sup>27</sup> Articles 20 and 21 of the 1936 Montreux Convention indeed refer to "In time of war" states in which the Turkish government as the coastal state will have entire discretion regarding granting the right of passage to military vessels and submarines in a floating state in a case in which "should Turkey consider herself to be threatened with imminent danger of war". Note: The threat of blocking shipping on the part of Turkey may probably be relevant even not in times of war, and even subject to "security" whims that can be a reason (even if a false one) for which a delay or stoppage of the passage of security vessels or carriers of dangerous material will be imposed, even if ostensibly, And subject to 'civilian' reasons of sailing safety, load, etc.

Turkey's appearance on the scene points to the significance of its unique position and importance which determines the traffic regime in the Straits (in practice). This demonstrates the complex bilateral relations between the parties. The stoppage of military vessel navigation in the straits has implications, as mentioned, regarding shipments related to military cargo as well. A previous Turkish threat to block the straits to Russian military vessels should be mentioned here as well. This took place in December 2015, following the downing of a Russian Sukhoi 24 in Syria by Turkish forces, and a Russian threat to retaliate against Turkey as a result.

The damage to merchant fleet vessels in the Black Sea during the first days of the campaign (a tanker, two bulk carriers, and a merchant ship flying different flags: Turkish, Japanese, Moldavian, and Estonian) led to the halting of trade traffic to Ukraine (also for insurance coverage reasons). On February 26, a Russian merchant ship was also detained by the French Navy in another maritime area – the English Channel, as part of the sanctions announced by the European Union on Russia.

### *International Reactions and Involvement*

International reactions were significantly expressed on an economic level in the international arena in the context of global inflation – due to the disruption in the supply of raw energy and its products as well as raw materials and their products, including food from Ukraine (itself). The global shipping implications for the crisis were evident in more than just the response to local damage to the abovementioned ships raising different national registration flags. On a global level, an obvious need for countries to organize and promote their own interests is evident – these needs are mainly economic but also political. An alternative solution was required for the supply of energy and its transportation from alternative sources, for example through Turkey. Thus, it has become necessary to utilize alternative sources of energy in the sea as well, and transport them through the sea or by sea from Turkish ports in the Black Sea – using tankers, or alternately through the network of gas pipelines in the Black Sea (from east to west). It should be mentioned that a gas pipeline – albeit in the North Sea – was sabotaged as a consequence of the overall campaign. Three explosions hit the "Nord Stream" pipeline transporting gas from Russia to Northern Europe (at the end of September 2022). This act was allegedly attributed to Russia but not yet determined.

The relationship between Iran and Russia continues to fuel the crisis in Ukraine, by supplying of unmanned aircrafts and possibly guided missiles. Iran may benefit from the assistance it provides to Russia in the maritime domain. Among these benefits are the maintaining of navigation and shipping in the Caspian Sea, from and to the Black Sea toward the Mediterranean. Russia has been maintaining the navigation on this

sailing route thus far, however in this context, the Iranian involvement may raise more consequences, even beyond the operative ones as indicated.

### *The Operative Maritime Aspect*

As mentioned, the southern front of the Russian attack on Ukraine was expected to include maritime activity. In addition to the moving of naval forces as part of the preparations, which will be mentioned below, Russia also relied to a large extent on infrastructures that it had previously held on to in the Black Sea, such as in Georgia and the Crimea, which it occupied about eight years earlier. The inauguration of the bridge (2018) over the chokepoint in the Kerch Strait, at the time, was accompanied by the naval conflict between the Ukrainians and the Russians – who then attacked a group of three second-line vessels of Ukraine. These were confiscated, as their teams were imprisoned in Russia for about a year. Even though the Kerch Bridge was damaged by Ukraine on October 8 (Figure 7) and harmed Russian sovereignty and the project that Putin personally supported (and even inaugurated), no lasting effect on shipping traffic in the strait was evident afterward.



Figure 7: The Kerch Bridge explosion on October 8<sup>28</sup>

As for the moving of naval units to the Black Sea prior to the "special operation" – with an emphasis on first-line vessels, were included three Kilo-class submarines in which Kalibr naval missile launches were used as well – it became evident that vessels were also

<sup>28</sup> H. I. Sutton, "Attack On Kerch Bridge: Initial Geolocation Of Damage", *Covert Shores*, October 8, 2022.

concentrated in the Mediterranean Sea, including three Kilo submarines, two Salva-class *Gorshkov* and *Udloy* cruisers. Furthermore, a force of six landing craft and auxiliary vessel forces were positioned there as well.<sup>29</sup> The Russian naval outpost at the Syrian port of Tartous has been used as a hub for the deployment of naval units and missiles in a coastal position. At the Khmeimim air base (on the Syrian coast) Tu-22M3 BACKFIRE-C aircraft armed with Kinzhal supersonic air-to-sea missiles were deployed. On March 20, it was also reported that a nuclear-powered 'Akula' submarine had arrived in the Mediterranean Sea.<sup>30</sup> Accumulating naval forces of the Russian Navy into the Black Sea has therefore begun (since the end of December 2021) and gained a relatively large number of vessels. The Russians claimed that this was a planned maneuver, and these various vessels were meant to participate in it.

A peak in the Russian naval presence could be identified during March 2022 when some 15 Russian vessels were present in the Gulf of Odesa (on the southwest Ukrainian coast) split between three secondary task forces (Figure 8).



Figure 8: The layout of Russian vessels in the Gulf of Odesa in March (March 16, 2022)<sup>31</sup>

<sup>29</sup> H. I. Sutton, "[Russian Navy Make Significant Pre-Positioning Moves](#)", *Covert Shores*, February 17, 2022; as well as in a YouTube video (which he edited), "[Russian Navy Build Up in Mediterranean: What You Need to Know](#)".

<sup>30</sup> "[Russian Navy Akula class submarine deployed in the Mediterranean Sea](#)", *itamirradar*, March 20, 2022.

<sup>31</sup> H. I. Sutton, "[Russian Navy Landing Ships Seen Approaching Ukrainian Coast Near Odessa](#)", *Naval News*, March 15, 2022.

The first defining naval event, the sinking of the "*Moskva*" cruiser, occurred on April 14 and was characterized as a game changer on the naval operational level. Apart from the political consequences that followed, in view of the involvement of other participants (such as Turkey, which manufactured drones that were probably part of the attack, alongside information from other foreign parties which were involved and influenced the course of action). It seems that additional operative consequences were related to the Russian naval forces' change in naval operations.

Another significant event (on October 29) apparently included damage to the *Admiral Makarov* frigate and at the operative level was a demonstration of Ukraine's tactical implementation of combat-related lessons. It is possible that Ukraine identified weaknesses and corrected them during the campaign, and partially implemented these corrections in the case of the sinking of the *Moskva* cruiser (in which the use of missiles and drones was combined). The next step included a more complex launch in which vessels and unmanned aircraft were used in a synchronized manner, as in the attack on the *Admiral Makarov* frigate. In addition, incidents of attacking unmanned vessels by smaller drones were noted as well.

Furthermore, significant Russian infrastructure elements have been developed and established in recent years in the area. The most prominent are the outposts in Tartous port, the Khemimim airfield and the Syrian coast as a whole (since 2015). All serve as an infrastructural-logistic and operational base for the benefit of Russia and its naval activities in the entire Middle East arena. They are intended to be seen as related, thus affect the Black Sea arena as well.<sup>32</sup> It is worth recalling that the east Mediterranean basin was identified as "important" in the 2022 Russian naval doctrine update. This is logical given the holding onto the Syrian coast along with the ongoing campaign in the Black Sea.

The Russian presence in Syria alongside Iranian forces, which in recent years share and coordinate their mutual activities, might be the background for Iran's involvement in the campaign in Ukraine, including in the context of using unmanned explosive aircraft manufactured by Iran (as apparent since the end of October). The need for integrating the Iranian equipment in Russia's order of forces was due Russia's lacking of such measures beforehand. In addition, a supply of Iranian-made precision guided missiles to Russia was mentioned as well. Several reports also refer to the integration of Iranian experts

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<sup>32</sup> Ido Gilad, "[The Activity of the Russian Navy in 2018 in the Middle East](#)", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2018/19* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2019), pp. 104–105; Gilad, "[The Russian Navy – Central Trends in 2019 and their Implication in the Middle East](#)," pp. 8–9.

in the campaign alongside Russia. Thus, it is worth referring to the significance of Iranian involvement in the campaign, which entitles Iran to the status of a regional power.

### *The Tactical Aspect*

The maritime aspect of landing operations initially included a concentration of second line vessels, including six Ropucha-class landing ships. The Russian landing from the sea in the Mariupol district met with some success, while the main objective of the planned landing in Odesa was not realized. Additional landing targets included the Kherson River and Mykolaiv Port alongside other locations, including Snake Island (Zmiinyi, on February 24). During this Russian activity, the deputy commander of the Black Sea Fleet, Admiral Andrey Paliy, was killed in Mariupol (on March 20).<sup>33</sup>

- The combination of sea mines, that were drifted toward the Romanian coast and even toward the Bosphorus strait, resulted, at least in part, from the activity of the Ukrainian side itself.
- The control of the Sea of Azov allows various and local forces of the Russian Border Guard, as well as landing forces, to operate in and from it. In this context, it is worth mentioning the 'apparently local' activity under the Kerch bridge (November 2018) which had international geostrategic implications, even though the parties involved at the time were relatively local (on both sides – Ukrainian and Russian).

### *Examples of Tactical Maritime Hits*

- On March 16, it was reported that the *Vasily Bykov* corvette had arrived at the port of Sevastopol (about 140 miles from Odesa) after it had been hit 9 days earlier, around March 7, by Ukrainian Grad artillery fire.<sup>34</sup>
- Dozens of Marines from the Ukrainian 36th Unit were killed in Mykolaiv port.<sup>35</sup>

Tactical aspects that have been implemented since the sinking of "*Moskva*" and also incorporated a self-made Ukrainian missile (the 'Neptune'), as well as the equipping with U.S. made Harpoon missiles, a probably self-made unmanned vessel, as well as unmanned aircraft made by Turkey. On the Russian side, there were attempts to obtain vessels that had been confiscated from the Ukrainian Navy, and to integrate weapons that were in short supply and installed on various platforms and included fire protection systems.

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<sup>33</sup> Ben Kessler, "[Top Russian Naval Chief Born in Kyiv Reportedly Killed in Battle](#)", *New York Post*, March 20, 2022.

<sup>34</sup> Tom Ough, "['We F----- Hit Them!' Ukraine Gets Revenge on Russian Warship that Attacked Snake Island Soldiers](#)", *The Telegraph*, March 7, 2022.

<sup>35</sup> Michael Schwartz, "[Russian Rocket Attack Turns Ukrainian Marine Base to Rubble Killing Dozens](#)", *New York Times*, March 19, 2022.



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In the area of active attack, land-based missiles were integrated into extended launch platforms, including the integration of Iranian-made means (unmanned aerial vehicles and precision-guided missiles) for the first time.

## Conclusion

Russia's actions on the southern front initially integrated naval and coastal means. The Russian Navy was expected to provide an effective response in the west of its assigned area, i.e., the western arena (which is relatively remote from the front). The naval forces should have served as a potential solution to bridging these range gaps, taking advantage of their forward hold on the Crimean Peninsula with an emphasis on Sevastopol and its naval access. Russian control through its navy was supposed to provide great advantages for Russia to achieve full control of the northern Black Sea area, on military, political, and economic levels.

The Russian goal was to gain control of the entire Ukrainian coast – with an emphasis on the southwestern front, at the center of which is the Gulf of Odesa – this was the plan at the beginning of the campaign in the Snake Island incident. At the beginning of the campaign, the Black Sea, Mediterranean Sea and Caspian Sea fleets launched some of the first Russian military attacks on Ukrainian infrastructure. However, after 50 days of fighting in this area, the Russian fleet suffered a considerable blow due to the *Moskva's* sinking. It is clear that this was the beginning of the second phase of the naval campaign – which has since been characterized by the relative withdrawal of the Russian fleet.

The maritime/coastal area in question is unique in its geographical structure, since the area contains many dominating, or alternatively, dominated shipping hubs. There are bays, straits, peninsulas (Crimea), closed seas (Azov, Caspian), river estuaries (Dnieper, Dniester, Danube), and dominating islands (Snake Island). There are also strategic, military and civilian facilities (ports, terminals, energy assemblies, communication lines, etc.) located in this area. The naval combat arena in question is littoral (in general) – with a limited and relatively dense terrain (unlike the open sea). Hence, a combination of a variety of forces in the various complexes of activities (marine or coastal) is required to give these forces effective weight within the required response.

It is evident that the naval consequences developing amid the campaign and emerging, as a result, are internalized by both sides and are affected by the learning. The dynamic aspects of the events since the outbreak of the campaign until now are evident. It is worth noting that integration and self-development of weapons continue to emerge and are being adopted as unique solutions. The dynamic marine activity continues. An expression of this is evident in the Russian threat to withdraw from the "Grain Corridor" deal. This

means potential exposure of commercial vessels and commercial transport at sea, in the future, to threat and excessive risk from Russia. For its part, Russia demonstrates considerable aggression against infrastructure targets, including civilian targets. Shipping is included in this, even though damage to the export of food at the beginning of the campaign was and will continue to be a threat with global significance, which will probably lead Russia to sabotage this equation only in distinct extreme situations.

The combat in Ukraine is significantly expressed in the updated Russian naval doctrine (2022). This arena is divided into three levels of importance. The doctrine mentions "vital" areas for Russia – among which is the Caspian Sea. On the other hand, the Sea of Azov, the Black Sea and the Straits were defined as having "important", i.e., merely a second degree of importance. The eastern Mediterranean, together with shipping routes along Africa and Asia, were also categorized as "important" regions in the updated naval doctrine.<sup>36</sup>

It follows that all the central points linked to the campaign in Ukraine are specified in the updated naval 2022 doctrine. Thus, they reflect the importance of both the area and the campaign in Ukraine for Russia. The status of the Caspian Sea and its maritime uses were emphasized in the doctrine as well. These may well indicate trends of strengthening ties with Iran, including in the maritime arena in question, if only as a result of various shipments, including weapon shipments, which may be used in the current war against Ukraine. However, the success of using these routes (as far as the Black Sea) may be an incentive for Iran to work to expand their distribution toward other destinations in the Middle East.

Potential Russian-Iranian cooperation in the maritime transport context may be based on the advantages of Russia's forward deployment in the region. In this context, it is worth noting the existing Russian hold on the Tartous port on the Syrian coast. It was defined in the 2022 naval doctrine as a "permanent base". However, despite the permanent hold on Tartous (since 2015), the infrastructure in place, while had been developed since then, has not yet become a full alternative in terms of the facilities and capabilities of providing infrastructure and the full techno-logistic service as attributed to the Black Sea. This gap is even more evident in view of the blockade imposed by Turkey on the passage of military vessels through the Turkish Straits.

In relation to Israel, the recommendation that has been raised in the past, to preserve coordination relations with Russia is even more significant in light of aspects that have a great impact on the maritime arena which emerged during the past year.<sup>37</sup> This

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<sup>36</sup> Official Russian Internet Portal of Legal Information, *Ibid.*

<sup>37</sup> Gilad, "The Russian Navy – Main Trends in 2019 and their Implications in the Middle East", pp. 22–23.

(multilateral) coordination could possibly be upgraded, for example, if Israel is regarded as an acceptable potential mediator, agreed upon by both sides (Russian and Ukrainian)

Among the main considerations in favor of continuing the coordination are:

1. The relevant clauses in the updated Russian naval doctrine (July 2022), according to which Russia continues to show, if only in theory, a great interest in the various maritime areas in the Middle East.
2. Russia continues to establish its grip on the eastern Mediterranean, with an emphasis on the Tartous port and the Syrian coast.
3. Russia continues to maintain, despite the campaign in Ukraine in the past year, coordination with key regional players, some of these efforts have even become more significant (such as coordination with Turkey), and others were strengthened even more as a result of the campaign and included the expansion of cooperation and alliances (with an emphasis on Iran). For this reason, beyond the coordination of positions and activity that was particularly evident in Syria, common interests were discovered and developed, including cooperation regarding the campaign in Ukraine, cooperation in the Caspian Sea, mainly in regard to maritime transportation and infrastructure development respectively, equipping and supplying weapon assemblies, and more.

## Russia's New "Naval Doctrine" in the Context of the War in Ukraine

*Tzevy Mirkin*

On July 31, 2022, during a visit to Saint Petersburg, President Vladimir Putin signed Russia's new naval doctrine.<sup>1</sup> The ceremonial signing was held at the State Museum of History, located in the Peter and Paul Fortress, which was built in 1703, marking the beginning of Saint Petersburg's construction. The fortress was meant to defend the mouth of the Neva River but was mainly used as a prison for political prisoners.

The new doctrine replaced the previous one, approved in 2015. Although this signing took place about five months after the Russian invasion of Ukraine, it is not likely that the new doctrine was written as a result of the war. The preparation of such a document (which is 56 pages long), usually takes a long while, and before it was presented for the President's signature, it would have gone through several stages of approval at all levels of military leadership, as well as a process of coordination with non-military entities whose activities it affects, including those managing civilian shipping, the defense industries and the shipping industry. For this reason, it is more likely that most of this doctrine's preparation took place before the war began.

The main changes to the doctrine reflect Russian leadership's evolution when it comes to the perception of threat. The new version includes a classification of various naval categories, according to their level of importance for Russia. These categories were divided into three groups: "vital", "important" and "others". According to the doctrine, the "vital" category is "directly related to the state's development, to the protection of its sovereignty, to its territorial integrity as well as to the strengthening of its defense; and has a critical effect on the socio-economic development of the state". This category includes Russia's internal waters, its territorial waters, economic waters and the continental slope, the Arctic arena, including the Northern Sea Route, the Sea of Okhotsk, and the Russian part of the Caspian Sea.<sup>2</sup>

The "important" category relates to issues that "largely influence Russia's economic development and national security". This category is tied to the oceans and seas to which Russia has direct access (including the Black Sea and the Sea of Azov), the eastern part of the Mediterranean Sea, the Black Sea straits, the Baltic Sea, the Kuril Islands, and "areas

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<sup>1</sup> A video of the signing ceremony [Путин утвердил Морскую доктрину РФ и Корабельный устав ВМФ](#).

<sup>2</sup> "The Russian 2022 Naval Doctrine", section 14.

of international shipping routes, including those along the coasts of Africa and Asia".<sup>3</sup> It is important to note that the Black Sea, which in the past six months has become Russia's main naval arena, is included only in the second level of importance to Russia.

Another change is the further emphasis on the definition of threat. Although the 2015 doctrine mentions various threats to Russia, the phrasing in the previous version is not as pronounced, and this topic is spread out among the various chapters dedicated to different geographical arenas. The new version specifically notes that "The independent domestic and foreign policy of the Russian Federation causes opposition from the United States and its allies, which strive to maintain their dominance in the world, including in the oceans".<sup>4</sup> Furthermore, it mentions "The United States's strategic policy for dominance of the oceans and its influence on international trends", as well as "the ambition of the United States and its allies to limit Russia's access to ocean resources and critical sea routes". Moreover, the "Claims of several countries to Russian territories located on the coasts" were defined by the authors of the 2022 doctrine as "major challenges and threats to Russia in the maritime context".<sup>5</sup>

The changes in the definition of threats are also reflected in the chapters dedicated to the various arenas. Thus, the chapter of the 2015 doctrine discussing the Atlantic arena, states that the "national naval policy" in this arena "stems from the existing conditions in the arena that are adapted to the North Atlantic Alliance alone, and create ineffectiveness when it comes to existing tools meant to ensure international security".<sup>6</sup> The 2022 doctrine states that "the national maritime policy in the Atlantic arena is determined taking into account the existence of NATO, whose activities are aimed to create direct confrontation with the Russian Federation and its allies".<sup>7</sup>

Regarding the Black Sea and the Sea of Azov, which are perceived by the Russians as part of the Atlantic arena, the 2015 doctrine stated that its main objectives are "the creation of a naval regime based on international maritime law that is convenient for Russia,<sup>8</sup> "the organization of navigation rules based on international law in the Kerch strait"<sup>9</sup> and "Improving the order of forces and the organization of the forces in the Black Sea Fleet, as well as developing their infrastructure in Crimea and on the coasts of the Krasnodar

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<sup>3</sup> Ibid, section 15.

<sup>4</sup> Ibid, section 20.

<sup>5</sup> Ibid, section 22.

<sup>6</sup> "The Russian 2015 Naval Doctrine", section 51.

<sup>7</sup> "The Russian 2022 Naval Doctrine", section 53.

<sup>8</sup> "The Russian 2015 Naval Doctrine", section 57a.

<sup>9</sup> Ibid, section 57b.

district".<sup>10</sup> The only change in the 2022 doctrine is the definition of the first goal as a "comprehensive strengthening of the Russian Federation's positions in the region" and the omission of the mention of the Kerch Strait, while the other goals remain unchanged.<sup>11</sup>

Similarly to the previous doctrine, the new doctrine refers to the development of shipping abilities as well. The chapter discussing this mainly repeats the previous version, especially in regard to the need to ensure "independence" in the field of shipping.<sup>12</sup> However, it was precisely this chapter that caused very significant reactions, perhaps even more noticeable than those that arose following any other chapter. This is related to subchapter 9, which describes one of the objectives as ensuring the capabilities of the Russian shipping industry to build large ships, including aircraft carriers.<sup>13</sup> Many interpretations considered this to be a statement of intent regarding the building of aircraft carriers. The government news agency "RIA-Novosti" reported that "the naval doctrine turned the construction of aircraft carriers into a priority when it comes to shipping".<sup>14</sup> The leading Russian economic newspaper "Vedomosti" commented on the new doctrine in an article titled "Russia's New Naval Doctrine Enables the Construction of Aircraft Carriers", in which it mentioned that neither the previous doctrine nor the government plan for the development of shipping, previously mentioned these type of ships.<sup>15</sup> However, it is important to emphasize that the doctrine does not mention the intention to build aircraft carriers but the need to ensure the ability to build large ships, including aircraft carriers. The meaning of this wording is an admission that Russia does not currently have such capabilities and the intention here is to create these abilities.

Despite all of the changes and the new wording in this document, the most striking characteristic of the new doctrine is the complete absence of the mention of the war between Russia and Ukraine, which since beginning in late February 2022, became the most significant influence on Russian strategic thinking, and the main factor influencing

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<sup>10</sup> Ibid, section 57c.

<sup>11</sup> "The Russian 2022 Naval Doctrine", sections 56-3.

<sup>12</sup> "The Russian 2015 Naval Doctrine", section 75, "The Russian 2022 Naval Doctrine", sections 66a, 66b.

<sup>13</sup> "The Russian 2022 Naval Doctrine", section 66i.

<sup>14</sup> "Naval Doctrine Calls Construction of Aircraft Carriers the Preferred Objective of Shipping Industry" ([Морская доктрина называет строительство авианосцев приоритетом судостроения](#)), RIA-Novosti news agency website, July 31, 2022.

<sup>15</sup> "Russia's New Naval Doctrine Allows for the Construction of Aircraft Carriers: During 30 Post-Soviet Years, no Such Ships were Built for the Russian Navy" ([В новой морской доктрине России допустили строительство авианесущих кораблей: Все постсоветское 30-летие для российского ВМФ такие суда не строились](#)), the *Vedomosti* website, July 31, 2022.

the country's strategic situation. The sanctions mentioned in this document (such as those against the defense industries and the shipping industry, as well as limitations on the supply of technologies in these areas) were all previously imposed, shortly after the annexation of the Crimean Peninsula.<sup>16</sup>

This fact supports the assumption that the doctrine has almost nothing to do with the war, and is a pre-planned updated version of the previous doctrine. However, its importance is not only in its content but also (and perhaps even more so) in the circumstances of its appearance.

The doctrine appeared after several events that became signifiers of the Russian navy's failure, first and foremost, the sinking of the flagship of the Black Sea Fleet, the "*Moskva*" cruiser, on April 14, 2022. As a result, the commander of the Black Sea Fleet, Admiral Igor Osipov, was dismissed, and there were even rumors of his arrest.<sup>17</sup>

Moreover, during the war, the navy only participated in auxiliary roles. Landing operations that seemed to be pre-planned were canceled, and the two marine brigades that were concentrated in this arena were used as infantry units in land operations and suffered heavy losses.<sup>18</sup> These developments damaged the reputation of the navy, which was presented during the past decade as a sign of the revival of Russia's military power. As a result, Russian leadership was forced to take steps to try and improve this situation. For example, it was decided to turn the signing ceremony into a demonstration of political leadership's support and trust in the Navy.

Under these circumstances, the signing ceremony was no less important than the doctrine itself. Usually, the signing of such documents (and the signing of official documents in general) is not televised or held in places like the State Museum of History in Saint Petersburg, but in one of the president's residences. Moreover, alongside the naval doctrine, the president signed the "Naval Service Regulations" – a document outlining the conduct of the entire naval force at the everyday level. The signing took place in the presence of the navy commander and the minister of defense and was even accompanied by honor guard soldiers in ceremonial naval uniforms.

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<sup>16</sup> "The Russian 2022 Naval Doctrine", section 23d.

<sup>17</sup> "The Black Sea Fleet has a New Commander" ([У Черноморского флота сменился командующий](#)), *BBC News Russian Service*, August 17, 2022.

<sup>18</sup> "What do we Know about Russia's Losses During Ukraine's Counterattack?" ([Что мы знаем о потерях России в ходе контрнаступления Украины](#)), *BBC News Russian Service*, September 16, 2022.

It is also important to note that the issues emphasized in the media (such as the ones related to the possible construction of aircraft carriers and the deployment of naval bases in distant arenas), were not related to the Black Sea arena. In addition to the fact that the doctrine was hardly adapted to the situation created after February 24, 2022, its introduction was probably meant to divert attention from the navy's participation in this war. In other words, this is an event whose media significance exceeds its strategic one.



## The Regime of the Straits (Montreux Convention 1936) and the Russia and Ukraine War

*Glen Segell*

This article examines the Regime of the Straits (the Montreux Convention 1936), governing the Turkish Straights that connect the Black Sea to the Mediterranean Sea. The regime it established is once again on the agenda following the military attack launched by Russia on Ukraine on February 24, 2022. Shortly after the onset of hostilities, Russia initiated a naval blockade of Ukrainian ports. The Convention prevented countries outside the Black Sea area from sending ships into the Black Sea to break the blockade. In July, an agreement brokered by the United Nations and Turkey was reached for limited exports of some products—specifically grain—through three Ukrainian ports as many countries worldwide rely on this grain, and without it, there would be hundreds of millions of starving people. However, the same agreement also prevents any ships entering the Black Sea to import goods to Ukraine as Russia is concerned that foreign weapons could be shipped there. The period from February to July 2022 was tense, leaving the question open of whether other states, especially NATO members, would contravene the Montreux Convention and send naval warships to break the blockade to alleviate the global grain shortage. The Agreement must be renewed every 120 days and so remains at the fore of international attention

### Introduction

The seas, and especially narrow sea passages, are critical to ensuring maritime transport and preventing possible threats. One such significant maritime passage is the Turkish Straits, formed by the Bosphorus and Dardanelles Straits. The Turkish Straits constitute the sole connection from the Black Sea to the Mediterranean Sea, and so to the rest of the world. The significance is that whoever controls that chokepoint controls the passage of all ships between the two seas. In this case, control has been granted to Turkey by international agreement.<sup>1</sup>

This article revisits the Regime of the Straits, often known simply as the Montreux Convention (1936).<sup>2</sup> It is an international agreement—signed by Australia, Bulgaria, France, Greece, Japan, Romania, Yugoslavia, the United Kingdom, the Soviet Union, and Turkey—governing the Turkish Straits, and it is still in effect. It gives Turkey control over access to key straits of the Black Sea—an agreement that is considered a big win for the

<sup>1</sup> [A map of the Turkish Straits.](#)

<sup>2</sup> United Kingdom Foreign, Commonwealth & Development Office, [Convention Regarding the Regime of the Straits](#), Treaty Series No. 30, July 20, 1936.

country's foreign policy to this day. The Convention relates not only to the passage of ships but also to the security of Turkey and the other Black Sea countries (Bulgaria and Romania, who are European Union and NATO members, as well as Georgia, Moldova, Russia, and Ukraine). The regime it established is once again on the agenda following the military attack launched by Russia on Ukraine on February 24, 2022; the total blockade of Ukrainian ports by Russia between February and July 2022; the United Nations and Turkey brokered agreement to permit grain exports since July; and the ongoing blockade of imports into Ukrainian ports.<sup>3</sup>



Figure 1: The Black Sea corridor/straits/maritime chokepoint<sup>4</sup>

Five issues are under discussion: (1) the dilemma of Turkey wanting to be neutral in the Ukraine war but being bound by the 1936 Convention; (2) whether Russian and Ukrainian warships will be allowed to pass through the Turkish Straits; (3) whether the future passage of warships from other states will be allowed in the event of possible international military measures against Russia; (4) whether such ships could have established a naval humanitarian corridor between February and July to ensure the export of grain to prevent a global shortage due to the Russian blockade of Ukrainian ports; and (5) whether such ships could be used to enable imports to Ukrainian ports given the ongoing Russian blockade.

This article will examine these issues through six lenses: (1) the context of the current Russia-Ukraine conflict; (2) the Montreux Convention of 1936; (3) the geopolitical

<sup>3</sup> Aditi Sangal, Meg Wagner, Adrienne Vogt, Melissa Macaya, Rob Picheta, and Lauren Said-Moorhouse, Ed Upright, Maureen Chowdhury, and Fernando Alfonso III, "[February 24, 2022 Russia-Ukraine News](#)", *CNN*, February 24, 2022.

<sup>4</sup> [The Turkish Straits Vessel Traffic Service](#) (TSVTS).

dimensions of the Montreux Convention of 1936; (4) the terms of the Montreux Convention of 1936; (5) adhering to the terms of the Montreux Convention of 1936; and (6) revisiting the terms of the Montreux Convention of 1936. The conclusions explore whether the Convention can survive this conflict, whether it needs to be renegotiated as naval warships and technology have changed dramatically since its signing, and, if renegotiated, whether this may well challenge other similar international agreements.

## The Context of the Current Russia-Ukraine Conflict

The Montreux Convention was aimed at providing some security assurances to Turkey and other countries on the Black Sea in the 1930s arising from the presence of foreign warships (the Convention uses the concept of "warship" instead of "military ship"). The ongoing geographical aspect is that the Straits are the only sea passage between the Black Sea and Mediterranean Sea, and thus constitute a chokepoint.<sup>5</sup> Maritime chokepoints are located throughout indispensable marine trade routes, and in case of global security problems, avoiding these chokepoints has often been suggested as a workable option. However, as these Straits are the only sea passage between the two seas, going through them is the only viable option for any maritime trade with the eight states on the Black Sea.

A recent crisis arose as Russia implemented a full naval blockade of Ukraine's Black Sea ports between February and July 2022 and since then a blockade of imports to Ukraine. Russia has permitted exports of grain following a United Nations brokered agreement.<sup>6</sup> At the onset of the conflict in February 2022, more than 100 foreign-flagged vessels and hundreds of mariners were stranded in Ukrainian ports. On July 22, the United Nations, the Russian Federation, Turkey, and Ukraine agreed to the Black Sea Grain Initiative, at a signing ceremony in Istanbul.<sup>7</sup>

The Russian military strategy aimed at cutting Ukraine off from its access to the sea to decapitate its economy, and between February and July, threatened world food security. At the height of the export blockade, world leaders expressed their anger at the situation at the World Economic Forum in Davos, Switzerland, in May 2022, calling it the

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<sup>5</sup> Lewis M. Alexander, "[The Role of Choke Points in the Ocean Context](#)", *GeoJournal* 26 (1992): 503–509.

<sup>6</sup> Bill Coombs, "[Russia's War in Ukraine: The War at Sea](#)", *International Centre for Defence and Security*, Brief, no. 6, June 21, 2022.

<sup>7</sup> United Nations, "[Updates from the Joint Coordination Centre](#)", *Black Sea Grain Initiative Joint Coordination Centre*.

"weaponization of food".<sup>8</sup> The export of Ukrainian grain provides food security for more than 300 million people around the world. The six-month blockade of exports left millions of tons of grain sitting in Ukrainian grain elevators or the cargo holds of the foreign ships stuck in Ukrainian ports, and much of this grain spoiled.<sup>9</sup>

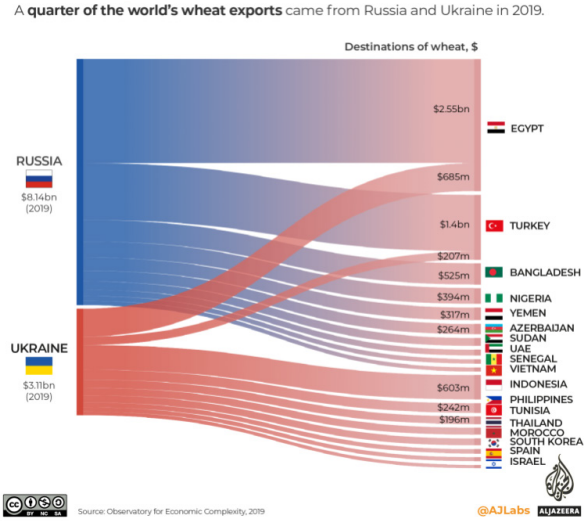


Figure 2: Russian and Ukraine Wheat<sup>10</sup>

The July deal allows the exports of grain, other foodstuffs, and fertilizer—including ammonia—to resume through a safe maritime humanitarian corridor, but from only three Ukrainian ports: Chornomorsk, Odesa, and Yuzhny/Pivdennyi. To implement the deal, a Joint Coordination Centre (JCC) was established in Istanbul, comprising senior representatives from the Russian Federation, Turkey, Ukraine, and the United Nations. According to procedures issued by the JCC, vessels wishing to participate in the initiative will undergo inspection off the coast of Istanbul to ensure they are empty of cargo, after which they will be permitted to sail through the maritime humanitarian corridor to Ukrainian ports to load. Vessels on the return journey will be inspected again at the Istanbul inspection area.<sup>11</sup>

<sup>8</sup> Phil McCausland, "Europe's Lost 'Breadbasket': How Russia's War in Ukraine Is Stoking a Global Food Crisis", *NBC News*, May 28, 2022.

<sup>9</sup> Vladislav Davidzon, "Opening Up Ukraine's Sea Routes Is Tough but Critical", *Foreign Policy*, July 21, 2022.

<sup>10</sup> Source: "Infographic: Russia, Ukraine and the Global Wheat Supply", *Aljazeera*, February 17, 2022.

<sup>11</sup> United Nations, "Joint Coordination Centre for the Black Sea Grain Initiative", *Black Sea Grain Initiative Joint Coordination Centre*, Retrieved December 2022.

This six-month embargo on the export of Ukrainian grain by the Russian Black Sea fleet represented a serious global food security threat; and the ongoing blockade of imports, while aimed at preventing the flow of weapons, further cripples the Ukrainian economy causing suffering to its civilians. Frustrating the situation is the absence of laws, national or international, on such a situation. The options open to the world are like those in all such global crises involving conflict: diplomacy and/or the use of military might to force an immediate solution. Further complicating the options is the Montreux Convention that would prevent foreign navies from entering the Black Sea.

Sanctions or embargoes are less effective because they take longer to implement. The situation was summed up by UN Secretary-General António Guterres who pointed out that, while most attention is focused on the effects of the war on Ukrainians, the war is also having a global impact—in a world that was already witnessing increased poverty, hunger, and social unrest. Even though the export blockade has been broken by diplomatic means, the war has dramatically reduced grain production to less than a quarter of what it was. So, the Ukraine crisis still risks tipping up to 1.7 billion people worldwide—more than one-fifth of humanity—into poverty, destitution, and hunger.<sup>12</sup>

Prior to the conflict, Ukraine was one of the world's largest grain exporters and, in 2021, supplied around 45 million tons of grain to the global market. Following Russia's attack on the country in late February 2022, mountains of grain built up in silos, with ships unable to secure safe passage to and from Ukrainian ports; land routes unable to compensate. Much of this harvested grain spoiled and became unusable. Given the war, yield decline is assumed for all scenarios since agri-technology applications will suffer due to a deficit of fuel, finances, and manpower. It is projected that wheat production in Ukraine in 2022 will be 19.8 million tons. Thus, exports could be estimated at no more than 14–16 million tons or a quarter of the production compared to 2021.<sup>13</sup>

A report issued by the Global Crisis Response Group on Food, Energy and Finance called on international financial institutions to release funding for the most vulnerable countries, help governments in developing countries to invest in the poorest and most vulnerable by increasing social protection, and work toward reforming the global financial system so that inequalities are reduced.<sup>14</sup> However, that would be addressing the symptoms in the short term but not the cause. It could be said that it is imperative that the world act. There is hope in this direction as Russia has shown flexibility. Russian Foreign Minister Sergey

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<sup>12</sup> United Nations, "[Ukraine War Unleashing a 'Perfect Storm' of Crises, Warns UN Chief](#)", *UN News*, April 13, 2022.

<sup>13</sup> "[Grain Production-2022 Forecast in Ukraine: Variety of Scenarios](#)", *UkrAgroConsult*, April 26, 2022.

<sup>14</sup> *Ibid.*

Lavrov visited Turkey in June 2022 for intense negotiations on this issue of breaking the blockade and, while seemingly fruitless at the time, nevertheless led to compromise by July to enable exports but still preventing imports.<sup>15</sup> Only an end to the conflict would bring grain production back to its previous levels and end the global shortage.

While diplomatic efforts continue, the other alternative is military means. Since the end of World War II and the establishment of the United Nations, the use of military means for humanitarian purposes is normally preceded by a debate in the UN and the granting of a resolution. Those willing to implement the resolution have been a coalition either as part of a United Nations force or another regional organization such as the European Union or NATO. This is a significant point as the Convention permits warships to pass through the Straits from the Mediterranean into the Black Sea in the case of assistance rendered to a state that is the victim of aggression by virtue of a treaty of mutual assistance. This would bind Turkey, as concluded within the framework of the Charter of the United Nations (Article 51).<sup>16</sup>

However, Russia as a permanent member of the United Nations Security Council would no doubt veto such a United Nations Security Council Resolution, thereby bringing into question the validity of any NATO action.<sup>17</sup> Furthermore, should any state proceed to break the naval blockade on humanitarian grounds, the act would clearly bring that state into direct conflict with Russia.

The presence of a Western naval flotilla in nearby waters for the express purpose of countering Moscow's war strategy would no doubt be perceived as a military threat by Russia. That such a convoy would have an ultimate humanitarian objective will not negate Russia's perception. Thus, the cooperating states would need to balance the options and decide if they wish to enter the war on the side of Ukraine. Even short of Russia directly and deliberately attacking coalition ships, the risk of accidental escalation would be high, as demonstrated by the 1988 US downing of an Iranian civilian airliner (IR655) by the USS *Vincennes* while conducting a similar operation to protect oil shipments through the Arabian Gulf.<sup>18</sup>

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<sup>15</sup> Ulaş Ateşçi, "[Russian Foreign Minister Lavrov Visits Turkey as NATO Escalates War in Ukraine](#)", *World Socialist Web Site*, June 10, 2022.

<sup>16</sup> [United Nations Charter](#) (full text).

<sup>17</sup> Hossein Malekshahi, Farid Azadbakht, and Hengameh Ghazanfari, "[Legal Models of Rule of Law: A Focus on Veto Power of Permanent Members of Security Council of United Nations](#)", *International Studies Journal*, 19, no. 2 (2022): Serial Number 74.

<sup>18</sup> Peter Margulies, "[Benchmarks for Reducing Civilian Harm in Armed Conflict: Learning Feasible Lessons about Systemic Change](#)", *Roger Williams University – School of Law*, Legal Studies Paper No. 214 (2022).

In the face of these conditions, the contention that the United States and its allies can break Moscow's ongoing blockade of imports to Ukraine (or the February to July export blockade) "without firing a shot" is dubious at best. Here, neither the United States nor any other NATO member appear eager to challenge Turkey's implementation of the Convention. To illustrate, NATO warships have not transited through the Turkish Straits since the onset of the conflict in February 2022.

## The Montreux Convention of 1936

A mission that seeks to achieve humanitarian objectives through military means is still a military operation, carrying all the risks that this kind of action would normally entail. In addition, should any states proceed as a "coalition of the willing" to establish a "humanitarian corridor" or to break the ongoing naval blockade of imports (or the February to July export blockade) using their own naval vessels, then at the fore would be the need to adhere to the Montreux Convention of 1936, if they are to abide by international law and custom. Signed on July 20, 1936, at the Montreux Palace in Switzerland, the Convention went into effect on November 9, 1936, addressing the long-running "Straits Question" over who should control the strategically vital link between the Black Sea and the Mediterranean Sea. The agreement concerns the Dardanelles Strait, the Sea of Marmara, and the Bosphorus Strait.

The "Straits Question" was originated in the Treaty of Lausanne, a peace treaty negotiated during the Lausanne Conference of 1922–23 and signed in the Palais de Rumine, Lausanne, Switzerland, on July 24, 1923.<sup>19</sup> The treaty officially settled the conflict that had originally existed between the Ottoman Empire and the Allied French Republic, British Empire, Kingdom of Italy, Empire of Japan, Kingdom of Greece, and the Kingdom of Romania since the onset of World War I. The Treaty of Lausanne had demilitarized the Dardanelles and opened the Straits to unrestricted civilian and military traffic, under the supervision of the International Straits Commission of the League of Nations.

By the mid-1930s, the strategic situation in the Mediterranean had altered with the rise of Fascist Italy, which controlled the Greek-inhabited Dodecanese Islands off the west coast of Turkey and constructed fortifications on Rhodes, Leros, and Kos. The Turks feared that Italy would seek to exploit access to the Straits to expand its power into Anatolia and the Black Sea region. There were also fears of Bulgarian rearmament.<sup>20</sup> Turkey was not permitted to refortify the Straits. In April 1935, the Turkish government dispatched a lengthy

<sup>19</sup> [Treaty of Lausanne](#), Treaty of Peace with Turkey Signed at Lausanne, July 24, 1923.

<sup>20</sup> Mehmet Doğar, "[The Place of Italy in Turkish Foreign Policy in the 1930s](#)", *Middle Eastern Studies*, 58, no. 1 (2021): 48–69.

diplomatic note to the signatories of the Treaty of Lausanne proposing a conference on the agreement of a new regime for the Straits and requested that the League of Nations authorize the reconstruction of the Dardanelles forts. The Abyssinia Crisis of 1934–35, the denunciation by Germany of the Treaty of Versailles, and international moves toward rearmament meant that the only guarantee intended to guard against the total insecurity of the Straits had just disappeared.<sup>21</sup>

In 1936, in response to Turkey's request to refortify the maritime area, the signatories of the Treaty of Lausanne and others met in Montreux, Switzerland, and reached an agreement to return the zone to Turkish military control. The Convention allowed Turkey to close the Straits to all warships in times of war and to permit merchant ships free passage. It remains in effect in 2022 and is thus relevant to the Russia-Ukraine conflict. The emphasis here is times of war. In order for the provisions of the Montreux Convention to go into effect, especially for Turkey to start using its powers and responsibilities, a war situation must exist. According to international law, a formal declaration of war is not required for the definitive determination of a state of war. Even if there is no official declaration of war by the state using armed force, the laws of war should begin to apply when there is a substantial use of armed force. In the context of the Russia-Ukraine war, Russia officially declared that it had launched a special military operation against Ukraine on the morning of February 24, 2022—an official declaration of the start of a comprehensive military operation against another state.<sup>22</sup>

Historically, it should be noted from the outcome of negotiations agreed upon in 1936 that the British, supported by France, sought to exclude the Soviet fleet from the Mediterranean Sea during World War II, where it might have threatened the vital shipping lanes to India, Egypt, and the Far East. Britain's willingness to permit Turkey to have control has been attributed to a desire to avoid Turkey being driven to ally itself with or to fall under the influence of Adolf Hitler or Benito Mussolini.<sup>23</sup> Turkey has used the Convention's powers before. During World War II, Turkey closed the Straits to warships belonging to combatant nations. That prevented the Axis powers from sending their

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<sup>21</sup> Lacin Idil Oztig and Mehmet Akif Okur, "[Border Settlement Dynamics and Border Status Quo: A Comparative Analysis of Turkey's Borders](#)", *Geopolitics* (2022).

<sup>22</sup> Elena Chachko and Katerina Linos, "[International Law after Ukraine: Introduction to the Symposium](#)", *AJIL Unbound*, 116 (2022): 124–129.

<sup>23</sup> Raul (Pete) Pedrozo, "[Closing the Turkish Straits in Times of War](#)", *International Law Studies – Stockton Center for International Law*, 99 (2022).



warships to attack the Soviet Union and blocked the Soviet navy from participating in combat in the Mediterranean.<sup>24</sup>

Now, the Montreux Convention is serving an important role in the Ukraine conflict. Ukraine asked Turkey to close the Straits to Russian warships, highlighting the Turkish role in keeping regional peace. The Turkish government agreed to this on February 28, 2022. However, several Russian warships have continued to enter and leave the Black Sea, with Turkey saying that it could not and would not prevent this if Russia claimed they were returning to their home port as that is permitted in the Montreux Convention.<sup>25</sup>

Russia is taking advantage of this, and in essence, the freedom of movement enables its Black Sea fleet to conduct business as usual. For example, these ships exit the Black Sea to perform tasks in the Sea of Japan—interacting with the Russian Baltic Sea fleet—and undertake regular patrols in the Mediterranean Sea. They then return to their home port in the Black Sea as and when they wish. At the time of the 2014 Crimean crisis, Russia's intent was to create a base on the Crimean Peninsula that would meet all the requirements for performing combat missions.<sup>26</sup>

## The Geopolitical Dimensions of the Montreux Convention of 1936

There is a Turkish saying, "Did your ships sink in the Black Sea?" The expression is used when a person is lost in thought, trying to resolve a seemingly unsolvable problem. As it turns out, that is the very body of water that put Turkey on a geopolitical tightrope since Russia initiated its attack on Ukraine and began military operations from those waters.<sup>27</sup>

Located in the western part of the landmass of Eurasia, the Straits are conventionally considered the boundary between the continents of Europe and Asia, as well as the dividing line between European Turkey and Asian Turkey.<sup>28</sup> The Straits—the Dardanelles

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<sup>24</sup> Nicholas J. Myers, "[The Significance of the Turkish Straits to the Russian Navy](#)", *Foreign Policy Research Institute (FPRI)*, March 4, 2022.

<sup>25</sup> Selen Baldiran, Dinçer Bayer, and Hüseyin Gençer, "[The Importance of the 1936 Montreux Convention for the Black Sea Security: A Close Look into Russia-NATO Controversy on the Russian Ukrainian Conflict in 2022](#)", *Information and Security*, 51 (2022): 11–23.

<sup>26</sup> "[Black Sea Fleet of Russia: Composition and List of Ships](#)", *UNANSEA*, Retrieved December 2022.

<sup>27</sup> Cengiz Vefa Ekici, Ozcan Arslan, and Ulku Ozturk, "[Fuzzy C-Means Clustering of Ships Passing through Turkish Straits](#)", in Cengiz Kahraman, A. Cagri Tolga, Sezi Cevik Onar et al. (eds.), *Intelligent and Fuzzy Systems: Digital Acceleration and the New Normal*, Proceedings of the INFUS 2022 Conference.

<sup>28</sup> The ensuing geographic details are quoted from Hasan Bora Usluer, Güler Alkan, and Osman Turan, "[Prediction of the Effects of the Current Regime on Ship's Maneuvering at the Strait of Istanbul](#)", *Kent Akademisi*, 15, no. 2 (2022): 611–629.

and the Bosphorus—are two internationally significant waterways in northwestern Turkey on opposite sides of the Sea of Marmara that create a series of passages that connect the Mediterranean Sea to the Black Sea. The Straits and the Sea of Marmara are part of the sovereign sea territory of Turkey and subject to the regime of internal waters, yet also subject to international agreements such as the Montreux Convention of 1936.

The Dardanelles is a narrow strait in northwestern Turkey, 61 kilometers long and 1.2 to 6.5 kilometers wide, linking the Aegean Sea (in the Mediterranean Sea) with the Sea of Marmara (in the Black Sea).<sup>29</sup> The city of Dardanus in the Troad (territory around ancient Troy) is where Mithradates VI (King of Pontus) and Sulla (the Roman general) signed a treaty in 85 BCE, giving the Strait its name. The location of the Dardanelles has given it international political importance.<sup>30</sup>

The name "Bosphorus" was derived from the ancient Greek word "Bosporos", meaning "cattle strait" or "ox ford". The Strait is located in northwestern Turkey and separates Thrace from Anatolia. It is the narrowest strait in the world, with a maximum length of 31 kilometers and a maximum width of 3.7 kilometers. The narrowest point is 700 meters wide, which is located between Anadoluhisari and Rumelihisari. Its depth ranges from 36.5 meters to 124 meters below the sea surface. It runs through Istanbul, the only city located on two continents. The Strait's shore is heavily settled and part of the Istanbul metropolitan area, Turkey's largest metropolis with 17 million people. Two suspension bridges are constructed across the Strait: Bosphorus Bridge I (15th July Martyrs Bridge) was constructed in 1973, while Bosphorus Bridge II (Fatih Sultan Mehmet Bridge) was completed in 1988.<sup>31</sup>

Owing to their strategic importance in international commerce, politics, and warfare, the sea straits connecting the Black Sea to the Mediterranean Sea have played a significant role in European and world history. A historical example of significance was when, in 1807 during the Napoleonic Wars, the British fleet under Sir John T. Duckworth closed the straits connecting the two seas and then forced them.<sup>32</sup> During World War I, the Allies failed to capture this sea route, though a British submarine penetrated the minefields

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<sup>29</sup> "[How Deep Is the Hellespont?](#)" *Staveleyfa.com*, 2022.

<sup>30</sup> W.R. Kermack, "[Notes on the Historical Geography of the Dardanelles](#)", *Scottish Geographical Magazine*, 35, no. 7 (1919): 241–248.

<sup>31</sup> Erkan Gökaşan, Emin Demirbag, Fazli Y. Oktay et al., "[On the Origin of the Bosphorus](#)", *Marine Geology* 140, no. 1–2 (1997): 183–199.

<sup>32</sup> Roger Knight, *Convoys: The British Struggle against Napoleonic Europe and America* (New Haven, CT: Yale University Press, 2022).

blocking the sea route and sank a Turkish battleship off the Golden Horn, an inlet on the Bosphorus.<sup>33</sup>

The Straits are recognized as one of the seven maritime chokepoints that have gained immense ill-fame in both past and present times, especially due to the heavy geopolitical pressure surrounding them.<sup>34</sup> The Montreux Convention regulates maritime traffic through the Black Sea and guarantees "complete freedom" of passage for all civilian vessels in all circumstances in times of peace.

## The Terms of the Montreux Convention of 1936

The Convention consists of 29 Articles, four Annexes and one Protocol. Articles 2 through 7 consider the passage of merchant ships and Articles 8 through 22 consider the passage of war vessels. The key principle of freedom of passage and navigation is stated in Articles 1 and 2. Article 1 provides that "the High Contracting Parties recognize and affirm the principle of freedom of passage and navigation by sea in the Straits", while Article 2 states that "in time of peace, merchant vessels shall enjoy complete freedom of passage and navigation in the Straits, by day and by night, under any flag with any kind of cargo".<sup>35</sup>

In peacetime, military vessels are limited in number, tonnage, and weaponry, with specific provisions governing their mode of entry and duration of stay. Warships must provide advance notification to Turkish authorities, which, in turn, must inform the parties to the Convention. There is a formal process for ships, both military and non-military, in transiting the Straits. These are detailed in the Turkish Straits Maritime Traffic Order Regulations Enforcement Directives.<sup>36</sup> There are also guidelines and recommended procedures by international organizations such as the Oil Companies International Marine Forum (OCIMF).<sup>37</sup> The Turkish authorities observe the vessels as they transit the Straits, confirming that each ship matches the request for passage and the international registry of ships while also confirming its weight, at least relative to the date of its construction.

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<sup>33</sup> John Fairley, *The Royal Navy in Action: Art from Dreadnought to Vengeance* (Barnsley: Pen and Sword, 2022).

<sup>34</sup> Carmen Ang, "[Mapping the World's Key Maritime Choke Points](#)", *Visual Capitalist*, March 30, 2021.

<sup>35</sup> The discussion henceforth quotes the content of the Convention: United Kingdom Foreign, Commonwealth & Development Office, [Convention Regarding the Regime of the Straits](#), Treaty Series No. 30, July 20, 1936.

<sup>36</sup> Republic of Turkey, Ministry of Transportation, Maritime Affairs and Communications, "[Turkish Straits Maritime Traffic Order Regulations Enforcement Directives](#)", November 15, 2011.

<sup>37</sup> OCIMF, [Guidelines for Transiting the Turkish Straits](#), 2nd ed. (London: Oil Companies International Marine Forum, 2021).

Turkey is authorized to close the Straits to all foreign warships during a war or when it is threatened by aggression. Turkey is also authorized to refuse the transit of merchant ships belonging to countries at war with it. In wartime, with Turkey not involved in the conflict, warships of the nations at war may not pass through the Straits, except when returning to their base (Article 19). Articles 14 and 18 impose several highly specific restrictions on what type of warships are allowed passage. Non-Black Sea powers wishing to send a vessel must notify Turkish authorities fifteen days prior to the requested passing, while Black Sea states must submit their request eight days prior to passage. Furthermore, no more than nine foreign warships, with a total aggregate tonnage of 15,000 tons, may pass at any one time. Passage is also denied to a single ship heavier than 10,000 tons. An aggregate tonnage of all non-Black Sea warships in the Black Sea must be no more than 45,000 tons, with no one state exceeding 30,000 tons at any given time. Non-Black Sea warships are not permitted to stay in the Black Sea for more than twenty-one days.<sup>38</sup> Only Black Sea states may transit capital ships of any tonnage, escorted by no more than two destroyers. Any revisions to Articles 14 and 18 require a 75 percent majority of signatory countries and must include Turkey.<sup>39</sup>

Under Article 12, Black Sea states are allowed to send submarines through the Straits with prior notice as long as the vessels have been constructed, purchased, or sent for repair outside the Black Sea. The less restrictive rules applicable to Black Sea states were agreed as effectively a concession to the Soviet Union, the only Black Sea state other than Turkey with any significant number of capital ships or submarines.

The treaty contains no explicit prohibition on aircraft carriers. However, modern aircraft carriers are heavier than the 15,000-ton limit imposed on warships, which makes it impossible for non-Black Sea powers to transit modern aircraft carriers through the Straits.

## Adhering to the Terms of the Montreux Convention of 1936

While the Montreux Convention was designed for a particular geopolitical context in 1936, and remains unchanged since its adoption, it has endured as a "solid example of a rules-based international order" since most of the intent of its terms are still followed.<sup>40</sup>

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<sup>38</sup> United Kingdom Foreign, Commonwealth & Development Office, [Convention Regarding the Regime of the Straits](#), Treaty Series No. 30, July 20, 1936.

<sup>39</sup> Ibid.

<sup>40</sup> Philip Towle, "[The Montreux Convention as a Regional Arms Control Treaty – Negotiation and Practice](#)", *Military Affairs*, 45, no. 3 (1981): 121–126.

To follow the intent of the terms, the former Soviet Union during the Cold War designated its Kiev-class and Kuznetsov-class ships as aircraft-carrying cruisers as the ships were armed with P-500 and P-700 cruise missiles, which also form the main armament of the Slava-class cruiser and the Kirov-class battlecruiser. The result was that the Soviet navy could send these aircraft-carrying cruisers through the Straits in compliance with the Convention, but at the same time, the Convention denied access to NATO aircraft carriers, which exceeded the 15,000-ton limit.<sup>41</sup>

Turkey chose to accept the designation of the Soviet aircraft-carrying cruisers as aircraft cruisers, as any revision of the Convention could leave Turkey with less control over the Straits, especially as another agreement, the United Nations Convention on the Law of the Sea (UNCLOS), had already established more liberal passage through other straits. Technically UNCLOS governs transit passage through international straits around the world. However, Article 35 clarifies that UNCLOS does not apply to long-standing international conventions in force.<sup>42</sup>

By allowing the Soviet aircraft-carrying cruisers to transit the Straits, Turkey could leave the other elements of the more restrictive Montreux Convention in place. Today there are no aircraft carriers, as defined by Russia, in the Black Sea Fleet. The upshot: it is the Montreux Convention, and not UNCLOS, that governs the Turkish Straits—which enjoy a truly unique legal status in international transit governance.

## Revisiting the Terms of the Montreux Convention of 1936

The Convention remains in force but not without dispute. It was repeatedly challenged by the Soviet Union during World War II and the Cold War. For example, for several years after World War II, the Soviets exploited the restriction on the number of warships by ensuring that one of theirs was always in the Straits, thus effectively blocking any state other than Turkey from sending warships through the Straits.<sup>43</sup> Soviet pressure expanded into actual demands to revise the Montreux Convention, giving rise to the 1946 Turkish Straits crisis, which led to Turkey abandoning its policy of neutrality. In 1947, it became the recipient of US military and economic assistance under the Truman Doctrine of

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<sup>41</sup> Alex Pape, *Janes Fighting Ships 2020–2021* (Coulson: Janes Information Group, 2020).

<sup>42</sup> United Nations, [United Nations Convention on the Law of the Sea](#).

<sup>43</sup> Constantine Capsaskis, [Moscow's Strategic Obsession with the Eastern Mediterranean: Lessons from Pre-Cold-War History](#), Policy Paper No.103/2022, Hellenic Foundation for European & Foreign Policy (2022).

containment and joined NATO, along with Greece, in 1952. It can therefore be said that the "Straits Question" is the reason why Turkey became a member of NATO.<sup>44</sup>

The United States has not signed the Convention but generally abides by it under customary international law. In doing so, the Montreux Convention is an obstacle to US naval build-up in the Black Sea due to the Convention's stipulations regulating warship traffic by nations not sharing a Black Sea coastline. Those stipulations place Turkey's relationship with the United States and its obligations as a NATO member in potential dispute with Russia and thus the regulations of the Montreux Convention. Russia may see an increased NATO presence in the Black Sea as escalation.<sup>45</sup>

The United Nations Convention on the Law of the Sea, which entered into force in November 1994, may well prompt calls for the Montreux Convention to be revised and adapted to make it compatible with UNCLOS's regime governing straits used for international navigation. However, Turkey's long-standing refusal to sign UNCLOS has meant that the Montreux Convention remains in force without further amendments. Furthermore, disregarding the Convention and permitting NATO warships into the Black Sea would immediately escalate tensions between Russia and Turkey.

Following Russia's attack on Ukraine on February 24, 2022, the Ukrainian government appealed to Turkey to exercise its authority under the Montreux Convention to limit the transit of Russian warships from the Mediterranean to the Black Sea. After initial reluctance, attributed to the country's close ties with both Russia and Ukraine, Turkish Foreign Minister Mevlüt Çavuşoğlu announced on February 27 that his government would legally recognize the Russian attack as a war, which provided grounds for implementing the Convention with respect to military vessels.<sup>46</sup> This meant denying passage to all military naval vessels, including those of NATO powers, who now cannot move their vessels from the Mediterranean to the Black Sea.

However, Çavuşoğlu reiterated that pursuant to the terms of the agreement, Turkey cannot block Russian warships based in the Black Sea from returning to their registered base. Around February 27–29, Turkey denied three of four Russian warships permission to enter the Black Sea as they did not have a home base in the Black Sea. Russia had previously been deploying its Kilo-class submarines from the Black Sea to the Mediterranean for

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<sup>44</sup> Jamil Hasanli, *Stalin's Early Cold War Foreign Policy: Southern Neighbours in the Shadow of Moscow, 1945–1947* (New York: Routledge, 2022).

<sup>45</sup> Adam Aliano, [The Montreux Convention and a Black Sea Presence: Leveraging Law to Enable Operational Capabilities](#) (Newport: Naval War College, 2022).

<sup>46</sup> Tayfun Ozberk, "[Turkey Closes the Dardanelles and Bosphorus to Warships](#)", *Naval News*, February 28, 2022.

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extensive periods of time, after which they would return to their home port in the Black Sea, thereby enjoying freedom of movement in both seas. At least six Russian warships and a submarine have crossed the Turkish Straits since the start of the Russia-Ukraine war in February 2022.<sup>47</sup>

## Conclusions

At the time of writing, November 2022, the Russia-Ukraine war continues and the terms of the Montreux Convention remain a focus. Between February and July 2022, Russia maintained a total naval blockade of Ukrainian ports. Grain was not exported, threatening to leave hundreds of millions worldwide starving. The period was tense, questioning if other states, especially NATO members, would contravene the Montreux Convention and send naval warships to break the blockade to alleviate the global grain shortage.

The United Nations brokered a deal to enable exports, but the same agreement also prevents any ships entering the Black Sea to import goods to Ukraine as Russia is concerned that foreign weapons could be shipped there. Since July 2022, the terms of the Montreux Convention remain a focus of the humanitarian crises as imports are now blockaded by international agreement to Ukrainian ports. Unless another agreement can be reached, foreign naval forces might need to enter the Black Sea and contravene the Convention. If this happens, it may open the door to challenging any other similar international conventions.

The agreement was for 120 days, and on November 17, Russia agreed to extend it for another 120 days under existing conditions without changes. In the weeks leading up to this, Russia had repeatedly warned that it might not agree to extend the agreement because a separate deal that was also signed in July, exempting Russian fertilizers from sanctions, had not been implemented. Russia also temporarily pulled out of the agreement at the end of October accusing Ukraine of a massive drone attack on its Black Sea fleet in Crimea.<sup>48</sup>

As the implementor of the Convention, the Turkish government finds itself in a difficult position. Article 19 of the Montreux Convention provides that if Turkey is not belligerent in a time of war, warships of any warring state will be prohibited from passing through the Straits except to return to their home bases. Herein lies a weakness as it is possible to change a home port. Thus, while a home port of any ship (military or non-military) is

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<sup>47</sup> Adam Aliano, "[Is Russia Exploiting a Gap in the Montreux Convention?](#)" *Lawfare*, June 14, 2022.

<sup>48</sup> Fulya Ozerka, "[Ukraine Grain Export Deal Extended for Four Months](#)", *Agence France-Press*, November 17, 2022.

defined when it is commissioned and enters service, this can change. The most common time to shift home port is in conjunction with major yard maintenance and docking availability. When a conflict breaks out, such as the current one, Turkey would rely on information that had been provided by Russia and Ukraine prior to the onset of the conflict. There is no legal means for Turkey to challenge them should they inform Turkey during the conflict that more ships had been added to that list. At the same time, the warships of other countries that are sent to support Ukraine or Russia or to break the Russian naval blockade of Ukrainian imports, or the earlier blockade of exports as well, would similarly need to be banned, as these countries are regarded as warring countries, and their home ports are not in the Black Sea. It would rest on Turkey to ban them.

Nevertheless, both Ukraine and Russia are important partners in critical energy and trade agreements for Turkey. Disregarding the Montreux Convention would immediately escalate tensions between Russia and Turkey. At the same time, Turkey, who has been a NATO member since 1952, wants to maintain or even strengthen its ties with the West. Its control over these key Straits may test its balancing act of relations with Russia and members of NATO and the EU.

Furthermore, it is fair to say that the main things aggravating Turkey's difficult position are the very fundamental tenets of the international community—peace and stability. The justification of letting foreign naval ships into the Black Sea in contravention of the Montreux Convention would be based on humanitarian grounds. The need to end the conflict and restore grain production to its prewar levels remains a priority even if exports are now permitted. With the war ongoing, the risk and potential remains that there will be no grain to export. Furthermore, as of October 2022, imports are still blockaded, and this has resulted in an ever-growing humanitarian crisis in Ukraine.

Foreign naval ships entering the Black Sea regardless of the reason would put the Montreux Convention of 1936 to the test, and it may not survive. A rationale for its renegotiation could be the fact that the Convention was signed more than eighty-five years ago and naval warships and technology have changed dramatically since that time, thus making it difficult to apply the Convention's highly technical transit limitations to modern warships. Another reason is that the nature of just and unjust wars and what is permissible in war (*jus ad bellum* that refers to the conditions under which states may resort to war or to the use of armed force in general and *jus in bello* that regulates the conduct of parties engaged in an armed conflict in legal terms) is no longer the same as it was between the two World Wars. So other instruments such as conventions might also need to be amended to reflect this.



If this happens, it may well challenge similar international agreements. To be sure, international agreements are sane and civilized instruments by which states and other subjects of international law, such as certain international organizations, regulate matters of concern to them in a normative manner. The bottom line then is that the international community must be sensitive to the effects of any potential naval responses to Russia, as they could implicate or even undermine the Montreux Convention as well as other conventions. However, if diplomacy does not bring an end to the conflict, then this might be the only means.

## The Impact of the Russia-Ukraine War on the Maritime Trade: Regional and Global Aspects

*Mark Shipton*

### Preface

The Russian invasion to Ukraine on February 24, 2022, has created far reaching global changes, in both geostrategic and macroeconomic aspects. Most of these changes stem from the negative impact of the war on the global supply chain which is heavily reliant on the global maritime shipping industry. The war in the region had a direct effect on the maritime trade, mainly due to three reasons: the naval blockade of Ukrainian ports by the Russian Navy, the sanctions imposed against Russia by the international community, and the sharp increase in maritime shipping insurance rates.

Maritime trade in the Black Sea accounts for only 6% of the global total; nonetheless, these shipping routes still account for a substantial portion of the commodity market – 2.61% of crude oil, 11.8% of steel, 26% of grain, and 20% of corn. The ongoing conflict in the region has led to a considerable increase in the prices of these products; for example, the global price of grain increased in a span of one month by about 102%, which also led to an overall increase in market price indices for manufacturing, energy, and logistics. The fighting in the Black Sea continues to affect the global supply chain, contributes to price increases and the acceleration of global inflation, and is a testimony to the frailty of the global economic system in the era of globalization.

### Background

Since the annexation of the Crimean Peninsula in 2014, the geostrategic situation in Southeast Europe has been accompanied by great tension. On February 24, 2022, after preliminary preparations, the Russian army invaded Ukrainian territory on several fronts; the Russian invasion is considered one of the largest conventional military offensives since World War II (Herb, Starr, and Kaufman, 2022; Lupsha, 2022). In the early days of the war, it became clear that the maritime domain is destined to play a significant role. The Russian naval force (The Black Sea fleet), having a quantitative and qualitative advantage compared to the Ukrainian forces, enabled Russia to establish an almost undisputed control over the Black Sea. Although the Russian Navy suffered considerable losses and casualties during the first months of fighting,<sup>1</sup> Russia continues to dominate this crucial domain (Shipton, 2022).

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<sup>1</sup> Russia lost the cruiser Moskva, its Black Sea Fleet flagship, to Ukrainian coastal missile strike during combat (Sands, 2022).

Russia's naval supremacy in the Black Sea constitutes as a major strategic advantage over Ukraine as it enables Russia the ability to conduct a myriad of military operations from the sea, e.g., launching stand-off precision land strikes and conducting amphibious operations. However, the most significant aspect is Russia's ability to enforce a long-term naval blockade against Ukraine's shipping routes and ports, de facto a

complete shutdown of all exports and imports via Ukrainian ports (Jacobs, 2022). In this context it is important to note that before the war, maritime trade constituted 70% of Ukrainian trade activity (Murray, 2022).

Even though the war is fought in relatively confined geographic areas, the overall adverse effects on the global economy remain significant.

## Geographical review of the Black Sea

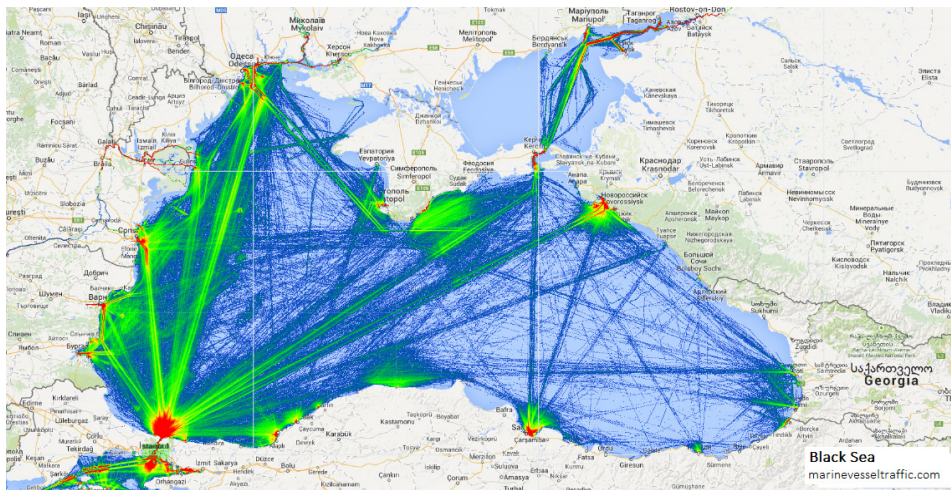


Figure 1: Ship traffic density in the Black Sea and main ports in the area (Yotsov, Dimitrakiev, Zabutov, and Koritarov, 2017)

The Black Sea is a body of water spreading over 436,400 square kilometers, located on the borders of south-east Europe and west Asia. Six nations reside on the shores of the Black Sea: Georgia and Russia to the east, Ukraine to the north, Turkey to the south, and Bulgaria and Romania to the west.

There are sixty-five seaports along the Black Sea, the largest are Constanta in Romania (the largest port in the Black Sea), Odesa in Ukraine, Novorossiysk in Russia, Varna in Bulgaria, and Batumi in Georgia. The Black Sea is connected to the Mediterranean by two continuous straits, the Bosphorus, and Dardanelles; these straits are the Black Sea's only

connection to the global oceanic system. It is important to note that the Black Sea also connects directly to the large rivers in eastern Europe: the Danube, the Dnieper, the Don, the Dniester, and the Kuban. These rivers allow relatively small vessels to transfer goods into central and eastern Europe (Dasgupta, 2022; Ports.com, 2022).

In the northeast, the Kerch strait connects the Black Sea to the Sea of Azov, a smaller body of water spreading over 39,000 square kilometers. Unlike the Black Sea which is relatively deep (1,253 meters on average) (Black Sea Commission, 2009), the Sea of Azov is rather shallow (7 meters on average) (World Atlas, 2022), which limits the size of vessels that can sail it. The Sea of Azov is a focal point of intense combat between Russia and Ukraine due to its strategic location – its northwest coast is the only stretch of land separating Russia from the Crimea Peninsula; Russian control over that area would provide it with territorial continuity between sovereign Russia and the Crimean Peninsula, which was annexed in 2014 (France24, 2022).

### A review of the Black Sea maritime trade

The Black Sea is an important transportation artery, connecting the surrounding nations (Russia, Ukraine, Georgia, Romania, Bulgaria, and Turkey<sup>2</sup>) to the global shipping trade routes.

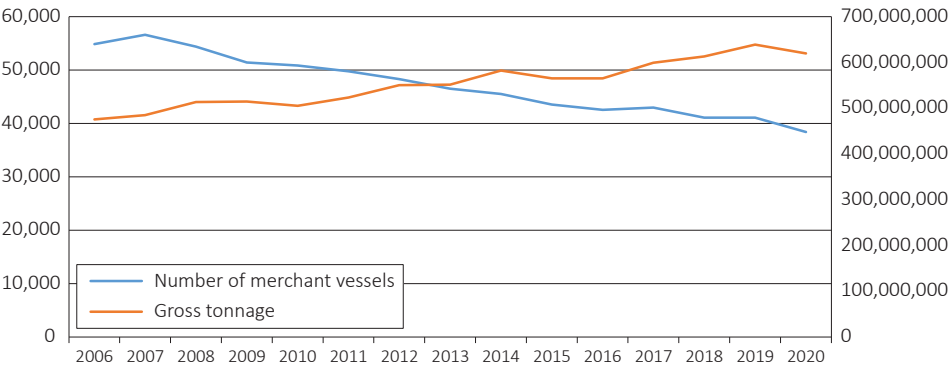


Figure 2: Merchant vessels and gross tonnage passing through the Bosphorus Strait annually in numbers

According to Turkish authorities' data, since 2006, approximately 48,000 merchant ships passed through the Bosphorus strait, carrying 600 million tons goods, annually.<sup>3</sup> A further

<sup>2</sup> Turkey has seaports in the Mediterranean as well, and therefore is not solely dependent on the Black Sea to connect to the global shipping trade routes. However, its Black Sea ports allow regionally focused importing and exporting with the other countries along the Black Sea shores.

<sup>3</sup> The Bosphorus and Dardanelles are under Turkish sovereignty, hence, the Turkish Ministry of Transport carries out an annual monitoring of ship movement in these straits.

investigation of the data reveals a consistent decrease in the number of ships transiting the Black Sea each year (30% less, since 2006), alongside an increase in the gross tonnage. This overall trend is accompanied by an increase in the size of the ships sailing these waters (a 30% growth in gross tonnage, since 2006) (Açık and Atac, 2022; Küçükosmanoğlu and Küçükosmanoğlu, 2021). This is mainly due to the significant decrease in the number of general cargo ships passing through the Bosphorus straits (a 49% drop, since 2006). Overall there has been the number of other types of vessels has remained (containers, tankers) and even increased (bulk carrier traffic has increased by 58%, since 2006) (Açık and Atac, 2022).

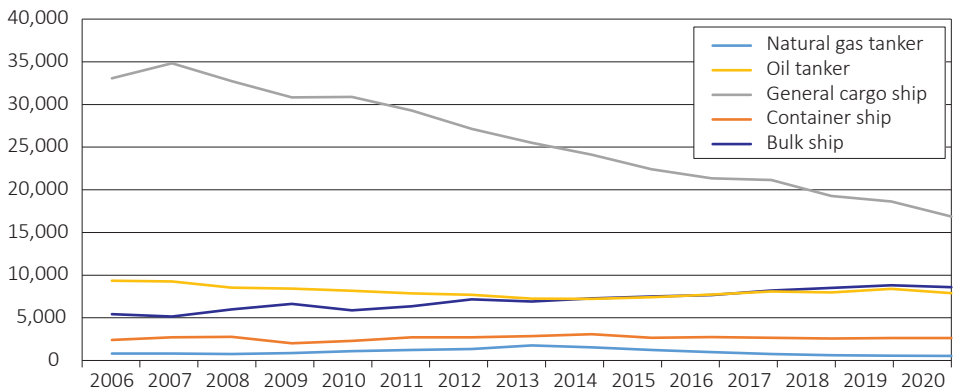


Figure 3: Annual ship traffic through the Bosphorus Strait

Nowadays, the maritime trade in the Black Sea constitutes only about 6% of global total (Schnurr and Walker, 2019; Walker, et al., 2019). However, the shipping routes in this area are of great importance both regionally and globally. In the regional aspect, landlocked countries like Azerbaijan, Armenia, and Kazakhstan maintain trade connectivity, via neighboring countries, with Black Sea ports (Export.gov, 2019); For example, 20% of Kazakhstani oil is exported from the port of Novorossiysk in Russia (Evans, 2022). In the global aspect, the shipping routes in the area convey considerable percentage of the world's commodity market, originating from Russia and Ukraine (Lee and Durisin, 2022).

Additionally, the great rivers of eastern Europe flow to the Black Sea and to the Sea of Azov, enabling the ferrying of goods aboard smaller vessels or barges deep into eastern Europe. This is particularly noticeable in the Danube River, which transfers over 20 million tons of goods each year from the western regions of the Black Sea to landlocked countries, such as Serbia and Hungary (Danube Commission, 2021). Regarding land transportation routes, it must be noted that some of the countries on the western side of the Black Sea (Romania and Bulgaria) are members of the European Union, and integrated in the European railway network, which also enables the transportation of goods quickly and

efficiently from the seaports on the western side of the Black Sea to markets throughout eastern and central Europe (ComparaBUS, 2022).

## The impact of the Russia-Ukraine conflict on the shipping market and the maritime trade

The war has created three factors that disrupt maritime trade: the naval blockade of Ukrainian ports by the Russian fleet, the sanctions of the west against Russia, and the increase in insurance rates for shipping activities in the Black Sea.

### *The naval blockade of Ukrainian ports*

The naval blockade enforced by the Russian Navy against Ukrainian ports and shipping lanes has led to a shift of Ukraine's maritime trade towards neighboring countries' ports, as well as the trade of other land-locked countries that depended on Ukrainian ports for export and import. It is worth noting, that until the war broke out, 70% of Ukraine's trade was conducted by sea (Murray, 2022). The shift of the maritime trade to ports of neighboring countries, mainly Constanta and Sulina in Romania, and Varna in Bulgaria, had resulted in an ever growing congestion of containers and general cargo in these ports, which sequentially led to a considerable price increase for shipping companies wishing to dock and operate in these ports. For example, the Constanta port authorities placed an additional 30 Euro fee for the repositioning of every container within port limits (Container News, 2022; Ernst, 2022; Savvides, 2022).

It must be pointed out that in the background, the fighting inland has also led to an additional indirect effect hampering maritime trade. The land trade routes between Asia and Europe to suspended operations. This also includes the CRE (China-Europe Railway Express) that passes through Russian and Ukrainian territories. This rail line is a significant trade route between China and Europe, carrying approx. 1.46 million containers each year. The cessation of the CRE has led to an increase in the volume of trade making its way between Asia and Europe by sea routes (Brinza, 2022; Siqi, 2022). Here, as well, an increase in demand compared to the existing supply leads to an increase in transportation fees.

### *The sanctions on Russia by the West*

In response to the Ukraine invasion, the West imposed sanctions against Russian business entities; these sanctions induced major shipping companies, such as Maersk, MSC, CMA, and CGM, to declare that they would cease operating with Russian entities and no longer call Russian ports (Russu, 2022). This created an overload of cargo destined for Russia in many ports (mainly in Western Europe). Importers and exporters were compelled to store the said cargo in long-term logistic centers and port terminals, causing a shortage

in logistic storage and an increase in service prices. Another aspect of the sanctions is the export of Russian oil, a decrease in supply in the oil market has led to a considerable spike in prices (which will be expanded on in the next section). This has also led to an increase in the price of petroleum products used as fuel for the shipping industry, such as VLSFO (Very Low Sulfur Fuel Oil), one of the most common fuels in the commercial shipping industry (Einemo, 2021); for example, according to UNCTAD (The United Nations Conference on Trade and Development), the VLSFO prices, in 2022, skyrocketed by 64% between January and the end of May, to over \$1,000 per ton (UNCTAD, 2022). Naturally, an increase in the prices of ship fuel means an increase in naval transportation fees.

### *The increase in insurance premium rates for shipping activities in the Black Sea*

The Russia-Ukraine war creates an inherent danger for civilian ships operating in the area. In the early days of the war, on the 24th and 25th of February, three merchant ships were damaged in the crossfire between Russian and Ukrainian navy forces; one tanker (*Millennial Spirit*) and two bulk ships (*Namura Queen* and *Yasa Jupiter*) (Bush, 2022; Reuters, 2022; Tanas, 2022). A week later, another bulk ship (the *Helt*) was hit and sunk, most likely due to a sea-mine (Kay, 2022a). The potential dangers to maritime trade led the IMO (International Maritime Organization) to set the risk level of activity in those ports to the highest – level III (IMO, 2022). In early March, the Joint War Committee<sup>4</sup> declared the entire northern region of the Black Sea, including the Sea of Azov, a high-risk area (MICA Center, 2022; Maritime Executive, 2022).

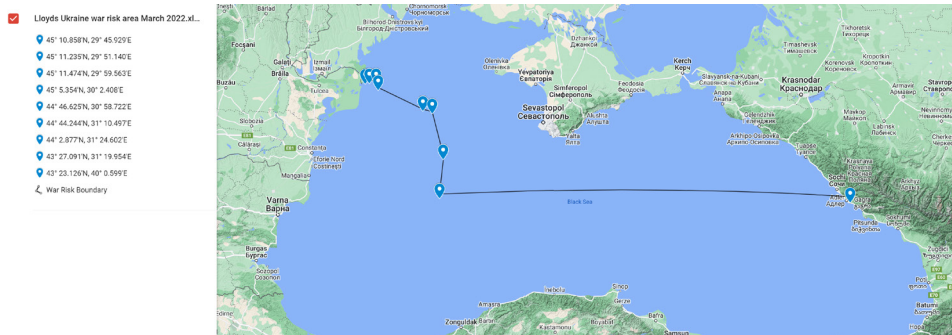


Figure 4: High-risk areas according to the Joint War Committee (Source: Maritime Executive, 2022)

<sup>4</sup> The Joint War Committee (JWC) includes the underwriters of insurance companies, that provide insurance policies to shipping companies. The committee is focused on analyzing the dangers inherent in regional instability (combat, piracy, crime) and estimates the risk level in the region. These definitions, in term, determine the premiums that insurance companies demand from shipping companies operating in those areas (LMA, 2022).

The high-security risk has led to massive increases in insurance rates for ships that wish to operate in the area (up to 10% of the ship's value).<sup>5</sup> This even created unique situations where the insurance costs for a ship could actually be higher than the costs of leasing the ship itself (Kay, 2022b; Koh and Nightingale, 2022). High insurance costs have led to a considerable increase in the prices of maritime transportation. For example, in early 2022 the cost of transporting one million barrels of oil from Russia's Novorossiysk port to Italy was under \$700,000. The price rose to about \$3.5 million at the beginning of April (Koh and Nightingale, 2022).

## Disruptions in the shipping market and maritime trade – a catalyst to an increase in the costs of raw materials

The ongoing conflict between Russia and Ukraine led to extensive disruptions in the shipping market and the maritime trade. The naval blockade of Ukrainian ports, the sanctions imposed against Russia, and the increase in insurance rates for merchant ships operating in the Black Sea, are considered as the main factors for the considerable increase in raw material prices. As previously mentioned, the Black Sea trade routes connect Russia and Ukraine to the global economic system; these countries are significant exporters of oil, agricultural produce, and steel, products that are an integral part of the commodities market.<sup>6</sup>

### *Petroleum*

According to the United States Energy Information Administration, the global production of crude oil in 2021 was 95.57 million barrels a day (EIA, 2022), out of which 2.5 million barrels were exported from Black Sea ports, i.e., 2.61% of the total global oil supply. Most of the oil passes through three main ports in the eastern Black Sea: Supsa port in Georgia exports around 100,000 barrels of oil a day from Azerbaijan, Novorossiysk exports around 600,000 barrels of Russian oil a day, and the CPC terminal exports around 1.6 million barrels of oil out of Kazakhstan. A substantial amount of that oil is imported by Eastern European countries (Ukraine, Romania, and Bulgaria) that either use it or transport it to Central Europe by land routes (Lee and Durisin, 2022). As noted, the war has led many countries to impose sanctions on the import of Russian oil (i.e., a decrease in supply),

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<sup>5</sup> Known as War Risk Premiums, they are determined by professional ship underwriters, in the service of big insurance companies, such as Allianz and Lloyd's (Kay, 2022b).

<sup>6</sup> The commodities market deals in pricing and trading of raw materials that are later processed to consumer products, usually energy (oil, natural gas), metals (gold, silver, platinum) and agricultural produce (corn, wheat, cotton). An example of market tracking can be seen on the [Bloomberg website](#).



this subsequently caused a significant and rapid increase of about 34% in oil prices: from \$89 a barrel mid-February to \$119 mid-March (Trading Economics, 2022b). It is worth mentioning that increasing oil prices also affect the prices of oil products such as gasoline, diesel, and LPG.

### *Agricultural produce*

Russia and Ukraine account for 26% of global grain exports and 20% of corn, most of which is exported from ports to the global market approx. 80% of Ukraine's grain exports (and 99% of corn exports) are exported by sea. The main buyers of Russian and Ukrainian wheat are Egypt, Turkey, and Indonesia (Lee and Durisin, 2022; Manthey and Frentzos, 2022). The naval blockade of Ukrainian ports and the sanctions on Russian companies caused a significant disruption in the grain and corn markets. Firstly, a considerable increase in the global price of wheat (\$332 in January to \$672 in April, 102% increase) (GlobalEconomy.com, 2022) and corn (\$583 in January to \$809 in April, 38% increase). Secondly, nations that depended on wheat imports from Ukraine and Russia such as Egypt, Turkey, and Indonesia, were suddenly forced to look for new sources of grain. Thirdly, the high demand for grain and corn combined with the pressure of sanctions on the Russian economy have led in recent months to an increased volume of wheat exported in violation of the sanctions (Cook, Ivanova, and Pitel, 2022).

On July 27, 2022, the Black Sea Grain Initiative was signed, allowing the limited export of grain and other agricultural produce out of Ukrainian ports under international supervision, mainly to developing nations in the African continent suffering from a severe food security crisis (UN News, 2022). According to FAO (Food and Agriculture Organization of the United Nations), the initiative resulted in a slight decrease in the grain price index during the month of August 2022 (1.4%).<sup>7</sup>

### *Steel*

According to the World Steel Association report, in 2021 the global steel export market was approximately 396.3 million tons. Russia is the second largest steel exporter in the world with over 31.5 million tons (8% of global exports), Ukraine is the ninth largest with over 15.2 million tons (3.8%). The combined gross of those two nations makes them the world's second largest steel exporter (46.7 million tons a year, 11.8%) after China (World Steel Association, 2021). The combination of sanctions against Russia and the blockade of Ukrainian ports severely limits the supply of steel, which had led to a considerable increase in steel prices, especially in Europe, which relies to a significant extent on

<sup>7</sup> According to the FAO Food Price Index (FFPI), published monthly.

Russian and Ukrainian steel. The price spiked from \$920 a ton to over \$1,400, an increase of nearly 52% (Spence, 2022).

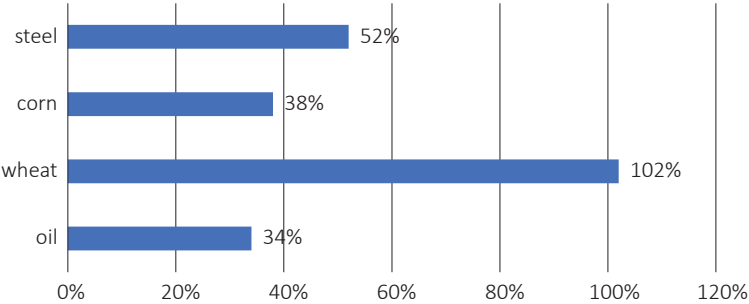


Figure 5: The increase in the price of raw materials after the outbreak of the war

### Conclusion

The Russia-Ukraine war has led to significant effects on the global economy. These effects include extensive disruptions to the global supply chain, which is highly dependent on the maritime trade which accounts for transport 90% of all global trade (OECD, 2022). The increase in insurance rates, the sanctions on Russia and the naval blockade of Ukrainian ports has led to a price surge in the commodities market, which in turn led to an overall price increase for the entire consumer market, in aspects of energy, manufacturing, food, etc.

It must be noted that the conflict between Russia and Ukraine affected an already strained global market, following a long period of disruptions caused by the COVID-19 pandemic. Insurance giant Allianz claims that "the war is creating an additional burden on the maritime industry, which is already dealing with ongoing supply chain disruption, port congestion and a crew crisis caused by the pandemic". (Allianz, 2022). Meanwhile, the increase in raw material prices acts as a catalyst for global inflation; for the first time in 40 years, both the United States and Europe are suffering from an inflation of over 8% (Trading Economics, 2022a).

Despite recent achievements of the Ukrainian military in the eastern districts of Kharkiv and Donetsk (Applebaum, 2022) and the successful Ukrainian strikes against Russian vessels by coastal anti-ship missiles and drones (Miller and McLeary, 2022), it is important to remember that the balance of power in the maritime domain still largely remains in Russia's favor. The Russian fleet continues to deploy large numbers of advanced military vessels in the region that enable the continuation on the naval blockade against Ukrainian ports. Accordingly, it would be true to conclude that as long as the war continues to

rage on, disruptions of the global supply chain will continue leading to further price increases fueling the spiking inflation rates. Looking ahead, the most effective way to restore stability to the global economy will be regional or international collaborations and agreements, such as the Black Sea Grain Initiative.

The process of globalization over the past decades has enabled the integration of economic markets to an unprecedented level. This has led to increased competition, product diversity, high level customer service, as well as the quick and efficient transportation of goods all over the world. Nonetheless, the conflict between Russia and Ukraine remains a painful testimony to the adverse effects of globalization – as a war taking place in a relatively limited geographic area has led to massive negative effects on the global market in a way that nearly every citizen in the world experiences.

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## Maritime Alternatives to the Russian Gas Import to Europe

### *Nitsan Lifshits*

Europe is one of the most significant energy markets in the world. EU countries import about 90% of energy sources they consume, with liquefied gas supplied to them by the United States.<sup>1</sup> Gas serves as an extremely important source of energy for Europe, since the continental electricity infrastructure, the heating of citizens' homes and the advancement of industry are all based on gas. Importing large quantities of gas is necessary for Europe because its stored gas capacity has significantly dropped in 2021 compared to previous years.<sup>2</sup> Figure 1 shows that while the ability to store gas in the European Union has increased, only 26% of available gas capacity was actually stored at the end of 2021, in contrast to a capacity of approximately 90% in 2020.<sup>3</sup>

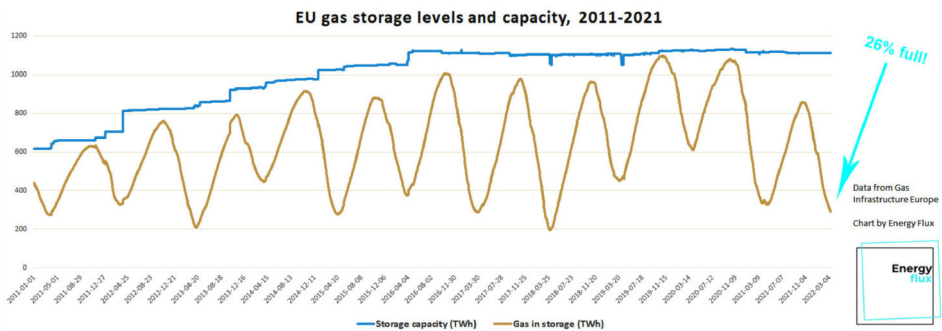


Figure 1: The average storage capacity and available capacity for natural gas in the European Union over the past decade<sup>4</sup>

Russia's invasion of Ukraine in February 2022 created a serious predicament in regard to the energy market for the whole world and for European countries in particular. Russia is the largest exporter of natural gas in the world, one of the largest exporters of liquid gas (along with Qatar and after Australia and the United States), as well as one of the largest oil exporters.<sup>5</sup> As a result, its influence on prices in the energy market is very

<sup>1</sup> Jarrett Renshaw & Scott Disavino, "[Analysis: U.S. LNG Exports to Europe on Track to Surpass Biden Promise](#)". *Reuters*, July 26, 2022.

<sup>2</sup> ABC NEWS, "[Australia has Offered to Export More Liquefied Natural Gas to Europe in Light of Ukraine Tensions. Here's Why](#)". January 27, 2022.

<sup>3</sup> Seb Kennedy, "[There's not Enough Gas to Go Around](#)". *Energy Flux*, March 18, 2022.

<sup>4</sup> *ibid.*

<sup>5</sup> Statista, "[Leading Gas Exporting Countries in 2021, by Export Type](#)", 2022.

significant. A war of this scale between Russia and Ukraine has had a dramatic effect on global geopolitics and threatens global trade and economy. In this context, energy prices have significantly risen in recent months, and in this context, some EU countries are facing a serious problem.

In 2021, Europe consumed about 500 BCM of natural gas; about 380 BCM of this gas was imported (through pipelines or liquefaction) and 45% of this gas was imported from Russia.<sup>6</sup> At the same time, Europe has imported about 76 million tons of coal and about 880 million barrels of oil, of which approximately 29% were imported from Russia.<sup>7</sup> This is a reality causing EU countries to search for alternative energy sources and to diversify their sources of import. European countries have understood for years that their energy dependence on Russia is problematic. As early as 2014, following the annexation of the Crimean Peninsula in the Black Sea, an official document entitled "The European Energy Security Strategy" was published on behalf of the European Union. The document stated that energy dependence on Russia alongside a limited number of suppliers creates one of the biggest and most dangerous challenges facing the European energy market.<sup>8</sup> The current war between Russia and Ukraine has highlighted the problematic aspects of energy dependence on Russia, and the frantic European search for alternative energy sources is now apparent.<sup>9</sup> To understand how serious this crisis is, it is enough to notice the panic that arose in Germany when the gas flow through the "Nord Stream 1" pipeline stopped for ten days in mid-July.<sup>10</sup> On March 8, 2022, shortly after the Russian invasion, the European Council stated that it aims to no longer be dependent on Russian energy and that it intends to reduce dependence on Russian gas long before 2030, so that by the end of the current year the supply of Russian gas will be reduced by approximately two-thirds.<sup>11</sup> This reduction of 101.5 BCM of natural gas can be achieved – at least theoretically – by increasing import from non-Russian sources to about 68 BCM of natural gas, as well as by locating other energy sources, cutting back on consumption and creating more energy efficiency, thus providing an alternative to the use of 38 BCM of natural gas.

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<sup>6</sup> BP, "[Statistical Review of World Energy](#)", 2022.

<sup>7</sup> Eurostat, "[From Where do We Import Energy?](#)", 2022.

<sup>8</sup> Elai Rettig and Oded Eran, "[The EU's Energy Challenges](#)", in Yotam Rosner and Adi Kantor (eds.), *The European Union in Turbulent Times: Challenges, Trends, and Significance for Israel*, Institute for National Security Studies (INSS), May 2018, pp. 103-112

<sup>9</sup> Elliot Smith, "[Europe's Plans to Replace Russian Gas are Deemed 'Wildly Optimistic' – and Could Hammer its Economy](#)", *CNBC*, June 29, 2022.

<sup>10</sup> Globes, "[Russia Renews Nord Stream 1 Gas Transfer to Europe](#)," 21 July 2022. [Hebrew]

<sup>11</sup> European Commission, "[Statement by President Von der Leyen on the 'Save Gas for a safe Winter' Package](#)", July 20, 2022.



In order to see whether and to what extent the European ambition to "abstain" from Russian gas is realistic, it is necessary to understand and analyze which non-Russian gas routes and alternatives currently exist for Europe, and what their gas capacity is. We shall begin by describing the existing Russian gas routes:

Several gas pipelines lead gas from Russia to Europe, some by land, such as those passing through Belarus, Turkey or Ukraine, and the Baltic Sea. In the case of Ukraine, passage through its territory has caused many problems in the past and even more so in the present. The 4,107 km long Yamal-Europe pipeline has a capacity of about 33 BCM of natural gas, and transports natural gas from the Russian gas fields on the Yamal Peninsula and western Siberia to Poland and Germany, via Belarus. It also transports liquid gas to European ports, such as the liquefied gas port in Rotterdam. The "Nord Stream" gas project consists of two gas pipelines that have been streaming natural gas from Russia to northeastern Germany through the Baltic Sea since 2011 and 2013, and serve as the longest maritime gas export route in the world. The "Nord Stream 2" project doubled the output of these lines, from a 55 BCM to 110 BCM capacity of natural gas. In total, Europe has imported about 155 billion cubic meters of gas from Russia, mostly through gas pipelines, including 15 cubic meters of liquefied natural gas (LNG).<sup>12</sup> Figure 2 shows the "Nord Stream" pipelines routes from Russia to Europe – the most important marine gas routes for the trade between these parties.



Figure 2: A map of the "Nord Stream" pipeline streaming gas from Russia, through the Baltic Sea, to Germany<sup>13</sup>

<sup>12</sup> IEA, "A 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas", March 2022.

<sup>13</sup> Moshe Kassif, "Increased Risk for Gas Supply to Europe, the High Price – and the Israeli Angle", *BizPortal*, July 6, 2022 [Hebrew].

What, then, are the alternatives to Russian gas? Several major routes lead natural gas and liquefied natural gas from other countries such as Algeria, the United Kingdom, Australia and the United States to EU countries today. All of them pass through the maritime domain or depend on sea lanes.

Algeria is the third largest supplier of gas to EU countries, and in 2021 it should export about 34 BCM of natural gas to Europe.<sup>14</sup> It should be noted that the largest increase in the supply of gas imported to Europe through pipelines today is from Algeria.<sup>15</sup> Algeria has long-term gas contracts with Italy, Portugal and Spain, and transfers a high volume of gas to them through pipelines about a thousand kilometers long, from the Hassi R'Mel gas field in the heart of Algeria, across the Mediterranean Sea.<sup>16</sup> One of these pipelines, transporting gas from Algeria to Spain (the MGE line) does indeed have the capacity for 6 BCM of natural gas in addition to the 13 BCM of gas it contains, but this line passes through Morocco, and due to tense relations between Morocco and Algeria, this pipeline was closed a year and a half ago.<sup>17</sup> The "Medgaz" gas pipeline running from Algeria to Spain can increase its amount of transported gas from 8 BCM of gas to about 11 BCM.<sup>18</sup> This may help in the effort to increase gas transfer from the Iberian Peninsula to France, with the two relatively small pipelines in use today, in which the unused gas capacity is about 7 BCM of natural gas.<sup>19</sup> In the long run, it is quite possible that with the completion of the 190 km long "MidCat" pipeline, leading from the Pyrenees and Barcelona to the south of France, the transportation of gas from Spain and Portugal to France and the rest of Europe will become more significant.<sup>20</sup> There are currently six gas liquefaction plants operating in Spain, making it possible to increase the import of liquefied gas from the United States and to transfer it to Western Europe through the planned "MidCat" gas pipeline. That being said, France only receives about 17% of its gas from Russia, and its energy infrastructure is mostly nuclear-based, thus, this is not a critical solution for France, while for Central and Eastern European countries these are not effective short-

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<sup>14</sup> Francis Ghiles, "[Escalating Rivalry between Algeria and Morocco Closes the Maghreb-Europe Pipeline](#)", *CIDB*, November 2021.

<sup>15</sup> *BP*, "[Statistical Review of World Energy](#)", 2021.

<sup>16</sup> News Wires, "[Italy Signs Clutch of Deals with Algeria in Bid to Boost Gas Supply](#)", *France24*, July 18, 2022.

<sup>17</sup> Francis Ghiles, *Escalating Rivalry*, *CIDB*, 2021.

<sup>18</sup> *Enerdata*, "[Algeria will Expand the Capacity of the Megaz Pipeline to Spain by 1/3](#)", November 11, 2021.

<sup>19</sup> Rodrigo Orihuela & Alonso Soto, "[Spain Says it can Pipe More Gas to France by Fall, Easing Bottleneck](#)", *Bloomberg*, July 2022.

<sup>20</sup> Madrid (AFP), "[Ukraine War Revives France-Spain MidCat Gas Pipeline](#)", *France24*, May 11, 2022.

term solutions.<sup>21</sup> However, it is certainly possible that in the future larger quantities of liquefied gas may be transported to the liquefaction plants in Spain, and transferred to Central and Eastern Europe through France after the gas pipelines passing through France are expanded. Furthermore, it should be noted that Spain and Portugal themselves do not need all of the gas they import from Algeria, since their liquefaction plants have the capacity to receive liquefied gas from the United States, as long as the European Union compensates them for the price differences. As for increased exports from Algeria, for southern and central European countries, the Italian option is preferable, since, as mentioned, Spain and Portugal's ability to export gas to them is limited. Thus, Algeria can increase the amount of gas streamed to Italy through the "TransMed" pipeline by about 9 BCM of natural gas at most, in addition to the 20 BCM of natural gas streamed through the pipeline every year.<sup>22</sup> An increase in the amount of gas exported from Algeria to Italy is expected in the coming years, but not in the winter of 2023.<sup>23</sup> Figures 3 and 4 show the gas pipelines leading from Algeria to Italy and Spain.

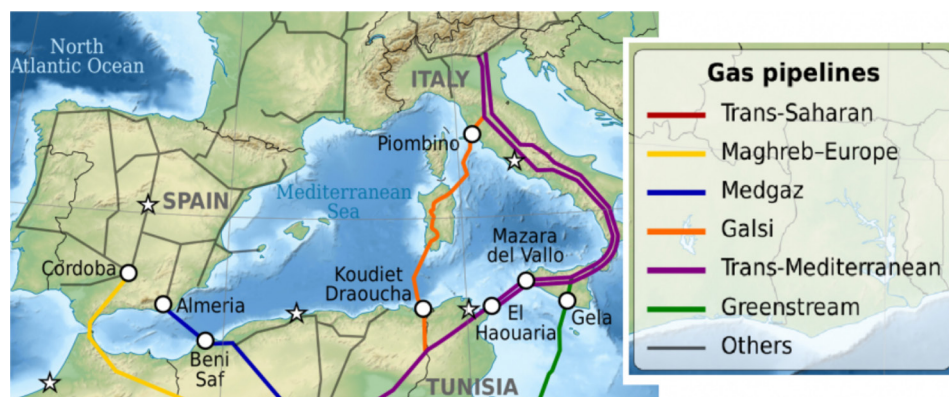


Figure 3: The gas pipeline from Algeria to Italy (in purple and orange) and the pipelines to Spain (in blue and yellow, which pass through Morocco and are no longer active)<sup>24</sup>

<sup>21</sup> *The Local*, "[France no Longer Receiving any Russian Gas Via Pipeline](#)", June 17, 2022.

<sup>22</sup> News Wires, "[Italy Signs Clutch of Deals with Algeria in Bid to Boost Gas Supply](#)", *France24*, July 18, 2022; Doron Peskin, "[A Problematic Alternative to Russia: Algerian Gas is Also a Tool of Punishment](#)", *Calcalist*, April 11, 2022 [Hebrew].

<sup>23</sup> Lain Esau, "[Algeria Agrees to Boost Annual Piped Gas Sales to Italy by up to 9 Billion Cubic Meters](#)", *Upstream*, April 13, 2022.

<sup>24</sup> *Gas to Power Journal*, "[Italian PM about to secure 4 BCM Additional Gas Supply from Algeria](#)", April 11, 2022.



Figure 4: The gas pipelines from Algeria to Italy (in orange) and Spain (in blue), and the gas pipeline from Spain to France (in yellow)<sup>25</sup>

Another option is to increase the amount of gas passing through the 325 km gas pipeline between the United Kingdom and the Netherlands (the BBL pipeline, Figure 5) with an annual capacity of 45 BCM of natural gas.<sup>26</sup>



Figure 5: The BBL gas pipeline leading from the United Kingdom to the Netherlands<sup>27</sup>

<sup>25</sup> *The Corner*, "The Iberian Solution can Offer Europe More Gas", May 2, 2022.

<sup>26</sup> BBL Company, <https://www.bblcompany.com/about-bbl>, 2022.

<sup>27</sup> *Ibid.*

Australia is also an important liquefied gas exporter, and in 2021 will export approximately 81 million tons of liquefied gas.<sup>28</sup> Thus, it may well be part of the efforts to diversify energy supply sources for the European market, a move that will benefit it economically and politically. However, in view of the situation in the global energy market and the fear of a gas shortage, there are growing voices in Australia calling for curbing exports and prioritizing the storage of excess gas.<sup>29</sup>

Some scholars offer another, somewhat more creative, solution, which is streamlining the natural gas systems in general and in North Africa in particular, including the Algerian pipeline. Thus, by preventing fuel from igniting or leaking, Europe may save 80 BCM of gas. That is to say, the estimated wasted gas in flare-ups and leaks around the world amounts to about 260 BCM of natural gas per year, an amount 1.7 times greater than that which Europe imports from Russia, and about 7% of global gas consumption. Such efficiency-oriented changes do not require considerable financial investment or technological innovation but currently are not seriously considered in the context of official European policy. In addition, expanding the use of renewable energies in areas where this is possible may help the effort to reduce Russian gas imports.<sup>30</sup> Renewable energies have been proven to be able to reduce domestic gas consumption by up to 57 BCM of natural gas by 2028.<sup>31</sup> Furthermore, a substantial amount of gas is used for the production of more oil – using a method called "reinjection".<sup>32</sup> With this method, gas is injected into an oil reservoir to create faster oil flow, thus increasing the amount of oil. The choice of whether to use the gas for "reinjection" or to sell it as gas depends heavily on the price of these two fossil fuels. Today, several countries, including Algeria, find it more profitable to use gas to improve and accelerate oil production rather than to sell it as gas.<sup>33</sup> Due to the gas crisis in Europe, and with appropriate financing, it is possible to reach agreements with countries using this method and encourage them to sell more gas rather than implement alternative uses, such as "reinjection".

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<sup>28</sup> ABC NEWS, "[Australia has Offered to Export More Liquefied Natural Gas to Europe in Light of Ukraine Tensions. Here's Why](#)", January 27, 2022.

<sup>29</sup> Sonali Paul & Renju Jose, "[Australia Considers Curbing Gas Exports to Avert Domestic Supply Crunch](#)", *Reuters*, August 1, 2022.

<sup>30</sup> Jan Rosenow, "[Europe on the Way to Net Zero: what Challenges and Opportunities](#)", *Plos Climate*, July 14, 2022.

<sup>31</sup> Jonathan Mingle, "[How U.S. Gas Exports to Europe could Lock in Future Emissions](#)", *Yale Environment 360*, April 21, 2022.

<sup>32</sup> Mao Sheng, Haizhu Wang, Ruiyue Yang, and Bing Yang, "[Chapter Six – Experimental Methods in Fracturing Mechanics Focused on Minimizing their Environmental Footprint](#)", In: *Sustainable Natural Gas Reservoir and Production Engineering 143-182: (2022)*.

<sup>33</sup> *Rysted Energy*, "[Rebalancing Europe's Gas Supply Opportunities in a New Era](#)", September 2022.

Another solution to the problem in question is to increase the import of liquefied natural gas (LNG) from non-Russian sources. Most liquefied gas is transported in tankers on ships from liquefaction plants (where natural gas is transformed into liquid by cooling it to minus 162 degrees Celsius) to the gasification plants, where the liquefied gas returns to a natural gas state, and is then transported through pipelines to other destinations. Liquid gas has become more popular in recent years, and due to its great importance in the global energy market, it affects the growing importance of the maritime domain.<sup>34</sup> Liquefied gas has proven to be an available, sought-after and important energy source, and was among the only products to show trade growth during the Covid-19 pandemic in 2020. However, while during a normal year, global trade in liquefied natural gas grew by about 8%, in 2020 it increased by only 1%, a fact also indicating a significant slowing down of global economic activity. For Europe, the possibility arises that Germany may build a number of liquefaction plants on its northern coast, and thus be able to receive liquid gas from the United States – one of the largest exporters of LNG in the world.<sup>35</sup> However, before considering the options based on future liquefaction plants, there are several options for increasing the quantities of liquefied gas imported to Europe from various non-Russian sources and reducing dependence on Russian gas. Figure 6 presents the quantities of liquefied gas imported to European countries, as of 2021, and the available liquefied gas capacity at their terminals.

The second largest port in the world, the port of Rotterdam in the Netherlands, has an LNG terminal ("LNG Gate") that is able to receive liquid gas,<sup>36</sup> and liquid gas is transferred to it on tankers from the Yamal Peninsula in Siberia, Russia.<sup>37</sup> There is an option for increasing the quantities of liquefied gas exported to European ports, thereby partially bypassing Russian gas. According to the American Energy Research Institute, the United States may be able to supply an additional amount of about 15 BCM of liquefied gas this year (2022) and increase the amount currently exported by more than 50 BCM of liquefied gas by 2030.<sup>38</sup> See Figure 7 for the existing American LNG facilities for export.

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<sup>34</sup> Mariusz Ruszel, "[The Development of Global LNG Exports](#)", In Kari Liuhto (ed.), *The Future of Energy Consumption, Security and Natural Gas*, 1-20: (2022).

<sup>35</sup> *European Commission*, "[EU-US LNG Trade](#)", 2022.

<sup>36</sup> *Global Energy Monitor*, "[Gate LNG Terminals](#)", 2022.

<sup>37</sup> *Global Energy Monitor*, "[Yamal Energy Terminals](#)", 2022.

<sup>38</sup> Clark Williams-Derry, "[The U.S. can Increase LNG Exports to Europe](#)", Institute for Energy Economics and Financial Analysis, April 6, 2022.

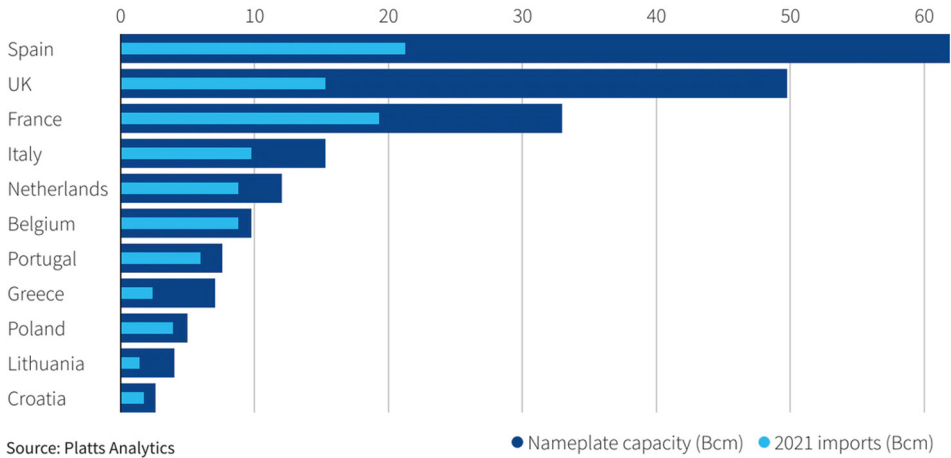


Figure 6: Import data (in light blue) and free capacity (in blue) of liquefied gas in European countries<sup>39</sup>

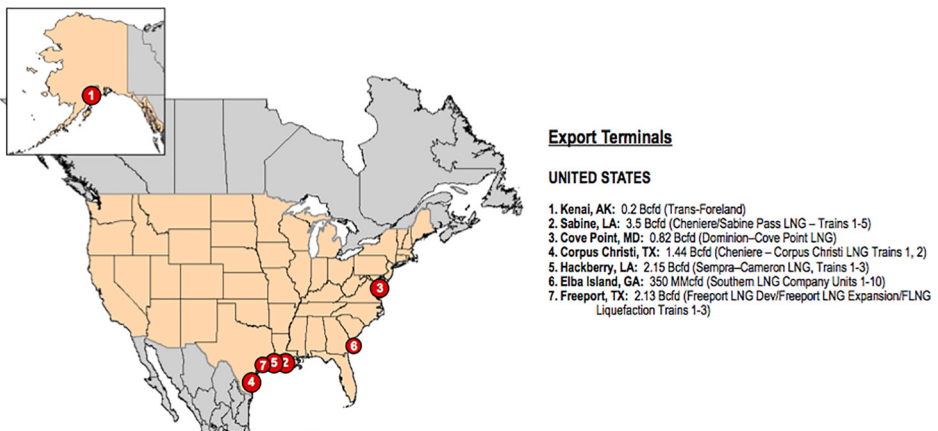


Figure 7: LNG export facilities in the United States, mainly in the southeast<sup>40</sup>

The United States is the largest exporter of liquefied gas to European countries, and since 2016 has been exporting liquefied gas to them at increasing rates from year to year.<sup>41</sup> From April 2016 to January 2022, Europe imported more than 64 BCM of liquefied natural

<sup>39</sup> Marwa Rashad & Isla Binnie, "[Brimming European LNG Terminals Lack Room for More Gas](#)", *Reuters*. February 18, 2022.

<sup>40</sup> *Global LNG Hub*, "[North American LNG Export Terminals](#)", 2022.

<sup>41</sup> Mike Schuler, "[FreePort LNG set to Restore Production at Key LNG Export Facility in October, Earlier than Anticipated](#)", *QCaptain*, August 5, 2022.

gas from the United States.<sup>42</sup> In 2021, the European Union imported about 77 BCM of liquefied gas from the US, and together with Turkey and the United Kingdom's liquefied gas imports, this amounts to about 108 BCM of liquefied gas. According to some, Europe should expand its imports of liquefied gas from the United States, since it has huge gas resources and is considered a close and stable political friend. The European Union has double the liquid gas capacity it uses today – a fact that can enable the seeking of a substitute for Russian gas. But there are several problems with this solution: most of the factories available to receive liquefied gas are located in Western and Northern Europe, on the shores of the Baltic Sea and the Atlantic Ocean, such as in the United Kingdom, Spain and Portugal. Thus, the import of liquefied gas from other maritime areas (the Mediterranean Sea, the Black Sea) is not relevant for these terminals, and for this reason, the amount of liquefied gas that can be transported to them is limited. The capacity of the natural gas pipeline between Spain and France is only 7.5 BCM, and currently uses 0.5 BCM. This means that it is possible to slightly increase the amount of liquefied gas sent to Spain, and transfer it to France, but these are small amounts compared to those needed in Europe. See Figure 8 for the existing and potential liquefied natural gas (LNG) plants in Europe.

The disparities between the liquefied gas absorption capacities of Northern and Western Europe versus Central, Eastern and Southern Europe create an internal problem within the European Union since the lack of supply of Russian gas and the lack of alternative gas and energy sources in the winter of 2022 will affect EU countries in different ways. This is another serious problem that the EU will have to face. How will it remain united and consistent in terms of its foreign policy and in its reactions to continued sanctions against Russia, in view of the differences in the ability to deal with the crisis in energy and gas sources?<sup>43</sup>

Other alternatives frequently referred to are importing more gas from Israel, Egypt, Turkey and the other Maghreb countries (Morocco and Libya). Regarding Israel and Egypt, both have greater gas reserves than they produce, consume or export (Egypt exported about 9 BCM of natural gas in 2021,<sup>44</sup> and Israel exported about 7.14 BCM of natural gas last year).<sup>45</sup> However, the EMFG gas pipeline, through which Israel exports to Egypt, has

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<sup>42</sup> European Commission, "[EU-US LNG Trade](#)", 2022.

<sup>43</sup> Georg Zachmann, Simone Tagliapietra, Ben McWilliams, & Giovanni Sgaravatti, "[Preparing for the First Winter without Russian Gas](#)", *Bruegel*, February 28, 2022.

<sup>44</sup> BP, "[Statistical Review of World Energy](#)", 2022.

<sup>45</sup> "[Review of Developments in the Natural Gas Economy](#)", Ministry of Energy, March 22, 2020 [Hebrew]; "[A New Gas Pipeline from Israel to Egypt? The Ministry of Energy is Examining the Plan](#)", *Investing.Com*, 22 November 2021 [Hebrew].



a capacity of only 5 BCM of gas per year. There is a possibility of expanding the pipeline and completing additional sites for the gas infrastructure so that the amount exported to Egypt will increase to 8 BCM of natural gas per year in the coming years, but this is a minor amount by European standards. In any case, the ability to receive the amount of Egyptian liquefied gas in Europe is very limited.<sup>46</sup> Libya has been experiencing political instability for several years due to the civil war and Morocco itself has to import natural gas, since after the shutting down of the pipeline between Algeria and Morocco, Spain started exporting to it.<sup>47</sup>



Figure 8: The existing, planned and potential liquefied gas plants in Europe<sup>48</sup>

Turkey has already begun to supply natural gas to Bulgaria, whose supply from Russia has been reduced, as part of a Russian political move to reduce gas export to European

<sup>46</sup> Marc Espanol, "[Egypt Breaks LNG Export Record with Eye on Europe](#)", *Al-Monitor*, February 16, 2022.

<sup>47</sup> Stuart Elliot & Gianluca Baratti, "[Spain Begins Gas Re-exports to Morocco via GME Pipeline: Enagas](#)", *S&P Global Commodity Insights*, June 29, 2022.

<sup>48</sup> *European Commission*, "EU-US LNG Trade", 2022.

countries, as a counter-reaction to the European Union's policy.<sup>49</sup> Turkey has discovered a huge natural gas reserve in the Black Sea, known as "Tuna-1" which contains about 400 BCM of natural gas, but its production has not yet begun, thus is not relevant for 2023. It should be noted that Central Asian countries, such as Azerbaijan, Turkmenistan, Kazakhstan and Uzbekistan have huge gas reserves which some of them export, mainly to Turkey. The TANAP gas pipeline in Azerbaijan, which currently has an annual average flow of 10 BCM, can transport 16 BCM per year and will be able to hold an additional 15 BCM of gas annually, by the end of the decade.<sup>50</sup> Theoretically, Europe can import much of this gas from Turkey;<sup>51</sup> however, many political obstacles are part of this picture.

Among all the alternatives mentioned here, the most realistic option is the increase in import of LNG from the United States to the Iberian Peninsula, and the construction of a gas pipeline transferring considerable amounts of gas to France, followed by creating an infrastructure for the leading of gas to Germany and additional countries in need of gas in southern and eastern Europe. Relations between the United States, Portugal, Spain, France, and Germany are strong and stable, and there are no diplomatic or security related tensions that may create problems in regard to this alternative. The United States has huge amounts of LNG to export, the liquefaction plants already exist on the Iberian Peninsula and can be expanded, and this region, as well as the region in question in France, is quiet and safe. It is possible that in the long run this solution will indeed be implemented, but not in 2023 or 2024. Although the United States has already stated that it will increase the quantities of liquefied gas exported to Europe, since its gas facilities are already working at almost maximum output, and any new project will only be completed after 2024, the excess amounts of LNG the United States can export to Europe today, will be deducted from its other customers, mainly East Asian countries, and it is not clear how this will be settled.<sup>52</sup> In addition, unexpected events such as malfunctions in gas infrastructures, such as in the case of the explosion of the second largest gas facility in the United States, the "Freeport – LNG" Pretreatment Facility in Texas, which is responsible for about 20% of exported liquid gas from the United States, make it difficult to increase the gas production and cause a dramatic increase in prices. Beginning in early 2022, gas prices in continental Europe have increased by more than 200%.<sup>53</sup> These problems make

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<sup>49</sup> David O'byrne, "[Turkey Looks to Import Gas from Turkmenistan, Test Exports to Bulgaria](#)", *Al-Monitor*, July 12, 2022.

<sup>50</sup> *Rysted Energy*, "[Rebalancing Europe's Gas Supply Opportunities in a New Era](#)", September 2022.

<sup>51</sup> Mardan Valhanov, "[The Work on the Transportation of Turkmen Gas to Turkey is Nearing Completion](#)", Anadolu Ajansi, July 2, 2022. (Turkish)

<sup>52</sup> Guy Tal, "[The US Wants to Replace Russian Gas – what are the Difficulties and who is Expected to Benefit from this?](#)", *bizportal*, March 27, 2022 [Hebrew].

<sup>53</sup> Moshe Kassif, "[An explosion at a Gas Facility in Texas Raises the Price of Gas in Europe and Causes it to drop in the US](#)", *bizportal*, June 14, 2022 [Hebrew].

it difficult to implement this alternative of increased gas imports from the United States as an alternative to Russian gas, certainly in the near future.

## Conclusion

What will actually happen in the winter of 2023? How will the gas market in Europe be affected and will Russia really cease to be the main energy supplier for the EU? It is difficult to answer these questions at the moment, but there appears to be a lack of effective alternatives that will fully, adequately, reliably and safely replace the supply of gas from Russia to European countries this winter. These alternatives are limited due to engineering, technological, political or budgetary difficulties. It is indeed possible, to a certain extent, to increase the quantities of liquefied gas imported to terminals with free capacity, from which available gas pipelines will lead to Central and Eastern Europe. Additionally, it is possible to increase the quantities of gas from North Africa to Italy and then to the EU, but these solutions guarantee only a small percentage of the gas that Europe consumes.

The danger arising as a result of fewer energy sources is not limited to the European fear of the freezing winter, but to real possible economic harm, since EU business activity relies on energy, and for some countries, industry, which relies on energy, is a significant foundation of their economy. For example, in Germany, gas is the second most important energy component after oil, and about a third of its economy is based on it.<sup>54</sup> In April 2022, Germany's Central Bank, Deutsche Bundesbank, announced that in the event that Russia completely cuts off gas flow to Europe, there will be a 5% hit to the German GDP, with an estimated amount of 180 billion euros.<sup>55</sup> The International Monetary Fund (IMF) has warned of a decline of up to 1.5% in the growth of the European GDP and of an option of deepening the recession.<sup>56</sup> Replacing Russian gas with imports from other sources is a complicated challenge and it is not clear how the European Union will be able to replace the huge amounts of gas it consumes.

For this reason, it seems that in the coming winter months during the end of 2022 and the beginning of 2023, Europe will continue to use Russian energy sources for heating, and in the process will attempt to find solutions by bypassing sanctions and regulating relevant issues, without any significant change to the current state of affairs.

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<sup>54</sup> Federal Ministry for Economic Affairs and Climate Action, "[Natural Gas supply in Germany](#)", 2022.

<sup>55</sup> Financial Times, "[Boycott on Gas Imports from Russia will Shrink Germany's GDP by 5%](#)", *Calcalist*, February 24, 2022 [Hebrew].

<sup>56</sup> Eloise Barry, "[Europe Relies on Russian Gas. A Tough Winter Lies Ahead Amid Fears of a Cut-Off](#)", *TIME*, July 26, 2022.

Table 1, below, presents the main points and data presented in this article, stating the advantages and disadvantages for Europe when it comes to alternatives to Russian gas.

Table 1: Summary of the data regarding gas export, as well as the advantages and disadvantages of the various alternatives to Russian gas

Countries of Origin and Destination	The amount of Gas Exported per Year	Advantages	Disadvantages
Algeria to Italy	About 20 BCM of gas through the "TransMed" pipeline.	May increase export by 9 BCM.	Not able to increase the amount per year for the next two years.
Algeria to Spain and Portugal	The transport of about 13 BCM of gas in the "MEG" pipeline was stopped in 2020.	May increase the amount exported on the EMG line to Portugal by about 6 BCM of natural gas.	The line is currently inactive due to the political disputes between Algeria and Morocco – where the pipeline passes on its way to Spain.
Algeria to Spain	About 8 BCM of natural gas in the "MedGas" pipeline.	Free capacity for about 11 BCM of gas.	A minor amount in European terms.
Spain to France	About 7.5 BCM of natural gas in the "MidCat" line.	Free capacity for about 3 BCM of natural gas.	A minor amount of gas and France is not among the countries that depend on Russian gas.
Israel to Egypt	5 BCM of natural gas per year.	A possibility of expanding the "EMFG" gas pipeline so that it may transport 8 BCM of gas.	A minor quantity by European standards that does not justify the costs of expanding the pipeline.
Egypt to Europe	3.5 BCFE of gas.	Can increase its LNG exports. The liquefaction capacity of its plants is double the amount exported.	There is insufficient capacity in the liquefaction plants on the European side of the Mediterranean Sea for large quantities of LNG from Egypt.
Turkey to Europe	Does not export itself, imported gas to Europe passes through it.	May export from the huge reservoir "Tuna-1" in the Black Sea.	The commercial production of large quantities of gas from the reservoir will not be carried out in the coming years.
United States to Europe	Exports the largest quantities of LNG that the European Union imports.	Can increase the amount.	American exports are mainly relevant for the European countries on the shores of the Atlantic Ocean. Ineffective for Central, Southern and Eastern European countries, which most need alternatives to Russian gas, since there is no efficient gas transmission infrastructure in the center of the continent.
From Azerbaijan to Turkey	10 BCM of natural gas per year through the TANAP pipeline.	This amount can be increased by 6 BCM of gas today.	The existing obstacle to increasing the amount is political.

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## The Iranian Strategy Following the War in Ukraine

**Alex Grinberg**

The fate of the Iranian nuclear deal (JCPOA) is still unclear, while Iran continues its traditional diplomacy without any significant changes. Iran did not expect the Russians to invade Ukraine, and so did other regional and global players. The new state of events forced Iranian leadership to maneuver skillfully in order to achieve political gains, nevertheless it did not alterate Iranian stance radically. This article illustrates Iran's updated security views to the Israeli reader following the war in Ukraine and evaluates the possible Iranian reactions in the coming year; the reduced chances for re-signing the nuclear deal are taken in account as well. In addition, the article examines certain changes in Iranian naval strategy in the Persian Gulf.

### Iran's Security and Threats Perceptions

The Iranian regime is convinced there are several main threats that it has to defend against:

- The United States since 1979 – The Iranian regime suspects that the United States intends to change its regime and its Islamic nature, including by a 'cultural attack', i.e., Western cultural influence.
- Israel.
- Saudi Arabia's support for Sunni Jihadist movements (in Iran's opinion).
- Complicated challenges around Iran's breached borders.<sup>1</sup>

The threats also dictate national interests, in which the survival of the regime is the primary interest. It means not only the physical survival but also the continuation of the regime of the Islamic revolution, also known as Velâyat-e Faqih (The Guardianship of the Islamic Jurist), which grants the leader supreme authority over any elected president. There are four essential Iranian interests:

1. The regime is determined to protect itself against internal and external threats; keeping in mind that most Shiites outside of Iran had never embraced the Iranian ideology.
2. Deterrence: Iran is aware that most of its rivals, including Israel, have larger quantities of superior conventional weapons. As a result, Iran invests in developing asymmetric capabilities, which include missiles and activating foreign proxies.

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<sup>1</sup> Gawdat Bahgat and Anoushervan Ehteshami, *Defending Iran: From Revolutionary Guards to Ballistic Missiles* (Cambridge: Cambridge University Press, 2021).

3. Retaliation: The asymmetric capabilities are designed to serve as another deterrence leverage if Iranian deterrence fails. In such a case, Tehran will unleash its asymmetric response by using missiles, drones, and pro-Iranian militias attacks, to cover for failing to prevent the enemy from attacking. Yet Iran resorts to all of the aforementioned capabilities to carry out its regional policies.
4. Power Projection: Iran sees itself as a regional power. The asymmetric capabilities are meant to persuade neighboring countries to prefer cooperation with Iran over conflict.<sup>2</sup>

On the one hand, most of the research literature on Iran's security doctrine is reluctant to thoroughly analyze issues of Iranian behavior, especially relating to Israel. Moreover, there is an unwillingness to analyze these perceptions critically. It has been argued that Iranian policy is after all pragmatic and not so different from other regimes.<sup>3</sup> On the other hand, there are many Israeli opinions regarding the Iranian nuclear program, on the right and on the left, but they do not discuss the essence of Iranian strategy, and rather focus either on the nuclear program, or its existential threat to Israel.<sup>4</sup>

## The Ideological Structure of the Iranian Regime

### *The Effects of Modern Ideology*

Iran's regime is not unique in being Shiite or Islamic since many nations in the Middle East abide by Sharia law. Both Pakistan and Afghanistan define themselves as Islamic republics. What makes Iran unique is the ideology that celebrates the Islamic revolution. Iran's leader Ali Khamenei often regards himself as 'a revolutionist',<sup>5</sup> that is due to the fact that the Iranian Islamist movements were directly influenced by Marxism. The defining myth of Shiite Islam is the Martyrdom of Imam Hussein in the battle of Karbala in 680 AD. The myth has metamorphosed since then thanks to modern interpretation by Islamic revolution harbinger Ali Shariati (1933-1977) who was influenced by Marxism and interpreted many Islamic terms based upon the fundamentals of Marxist ideas. His commentaries are widespread across Iran and embraced by the founder of the Islamic

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<sup>2</sup> Ibid, pp. 11–12.

<sup>3</sup> Ibid.

<sup>4</sup> Gad Ivgy. "[Existential Danger: Lapid's Strategic Failure](#)", *Mida*, August 31, 2022 (Hebrew); Noah Shamir. "[The Iranian Nuclear Program is not an existential threat. Israel needs another strategy](#)", *Haaretz*, July 8, 2021 (Hebrew).

<sup>5</sup> "[Man, diplomat nistam, man enghelabiyam](#)", "I am not a diplomat, I am a revolutionary" (*Rajanews*, February 8, 2013).

Republic, Ayatollah Ruhollah Khomeini.<sup>6</sup> Based on this interpretation, Hussein's heroic death was one of an unrelenting fight against injustice. The Islamic discourse embraced terms such as 'Oppressed on Earth' (Mostazafin) and "Global Arrogance" (Astakhbar-y Jahani or Mustakbarin). Khomeini's assistant, Ayatollah Mohammad Hussain Beheshti, who more than anyone else developed the new Islamic discourse, emphasized the importance of a political ideology or a doctrine in addition to other aspects of Islam.<sup>7</sup>

### *Resemblance to Communist Totalitarianism*

As a result of the encounter with European influences Islam in Iran took shape of a completely modern political ideology. Moreover, the terminology and vocabulary of the Islamic revolution themselves are not only modern but borrowed from the West, starting with the term "Revolution". Therefore, the Iranian Islamic regime is not 'Medieval' or 'retrograde,' but modern and in some of its characteristics similar to modern authoritarian regimes. Of course, similarity doesn't mean identity, and yet there is a basis for analogy and comparison.

The revolutionary aspect had several consequences, some are strategic and long-term. One of them is a confrontation stance vis-à-vis Israel and the United States, that in Iran's eyes, represent a global hegemony. That is because the revolution inherently requires enemies, both foreign and domestic. This position perpetuates Iran's behavior as a revisionist power.

S.N. Eisenstadt pointed out a resemblance between the French Revolution's Jacobins to modern religious fundamentalists. He saw them as the modern Jacobins. The 18th-century revolutionary Jacobins championed the values of Enlightenment that the French Revolution supported; however, they claimed to represent the people without asking their opinion and determined that it was their right and even their duty to take every measure, including violence and terror, to bring the ignorant masses and the opponents to an enlightened revolutionary consciousness, be it through the guillotine. The Jacobins were the first in history to use violence in the name of distinct humanist values.<sup>8</sup>

A fundamentalist approach is not limited to Islam alone. It is a monotheistic religion's response to the challenges of modernity. It is not a complete rejection of the West or

<sup>6</sup> Ervand Ebrahimian, "[Ali Shariati: Ideologue of the Iranian Revolution](#)", *Middle East Report*, 102, January/February 1982.

<sup>7</sup> Mohammad-Hosseini Beheshti, *Mabani-ye Nazariye Ghanun-e Asasi* (Theoretical Fundamentals of the Constitution), (Tehran: Bonyad-e Nashr-e Asar-e Shahid-e Beheshti, 2001), 22–25.

<sup>8</sup> S.N. Eisenstadt, *Fundamentalism, Sectarianism, and Revolution: The Jacobin Dimension of Modernity* (Cambridge: Cambridge University Press, 2000).

modernism, but rather a selective appropriation of their values. Therefore, religious fundamentalism is by definition a modern phenomenon. Since the revolution, the Iranian regime went through many transformations following the purges and the Iran-Iraq war, but it remains the same regime that advocates the same values, that is to say, an inflexible ideology that relies on the state of perpetual conflict with the world's superpowers and Israel.<sup>9</sup> Moreover, there is no revolution without confrontation. It implies that as long as the Iranian regime insists on the revolutionary dimension of its essence, it needs confrontation. Otherwise, the regime's rhetoric risks becoming a lip-service, which is wrought with risks for the regime's credibility and survivability.

### *An Existential Need to Preserve the Ideology*

Ali Khamenei has been leading Iran since 1989. He has proven to be a responsible and pragmatic leader; although it is important to understand these 'positive' descriptions in the context of Iranian reality. In other words, Khamenei has never taken any action that would make him seem reckless or warmongering. The leader of Iran is working to ensure the survival of his regime; however, it is necessary to clarify this determination and analyze the implications in a historic and national reality. In other words, how should the regime act to guarantee both the protection of Iran and the survival of the political revolutionary regime?

- **The revolution must continue** – Khamenei is aware of the fact that there cannot be any reforms without a profound change of the regime. For example, ending the conflict with the USA and Israel won't allow the regime to call itself revolutionary; it would then be widely known as merely empty slogans without any real content. If such developments occur, the regime will lose credibility and deterrence not only with geopolitical rivals but with citizens at home as well. The regime cannot afford to settle for exclusively verbal conflicts with the USA and Israel; it must carry the revolution's decree into practice. If that applies only verbally, it would be perceived as cynical and hypocritical, and automatically translated to the loss of credibility and deterrence mentioned before. Clearly, Khamenei or his successors will find it difficult to legitimize their rule if the regime does not stick to its revolutionary definitions and the Guardianship of the Islamic Jurist.
- **Avoiding escalation or war** – Khamenei and other senior regime officials took part in the Iran-Iraq war and are aware of the heavy price the Iranian people paid in that war. In spite of ongoing oppression, the Iranian regime is alert to the public's feelings and their fear of war. Furthermore, the leadership is aware of Iran's weaknesses; Iran

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<sup>9</sup> G. Almond, S. Appleby and E. Sivan, *Strong Religion: The Rise of Fundamentalisms around the World* (Chicago: University of Chicago Press, 2002).



is a vast country, but in the absence of a modern army it has difficulties maintaining its borders. The Iranian army, including the Revolutionary Guards, lacks mobility and quick reaction forces. It is clear to them that Iran cannot endure conventional warfare with a rival state. Therefore, Iran conducts its regional activities to achieve long-term objectives, but at the same time avoids taking actions that would ensure a severe military response.

- **Emphasizing the asymmetric capability** – In the absence of means or capability, Iran's conventional military force is limited. Therefore, the optimal solution the leadership had found is investing in asymmetric capabilities, which spreads over several fields:
  - Missiles and drones.
  - Supporting 'proxies' like Hezbollah in Lebanon, pro-Iranian militias in Iraq, Houthis in Yemen, and deploying precision-strike missiles in Syria; in addition to changing the Syrian demographic balance in favor of Shiites.
  - Hezbollah's global networks, especially in South America and Africa, rely on Shiite communities and work in favor of Iran.<sup>10</sup>
  - Nuclear weapons serve a purpose not as a weapon of war, but as a geopolitical power multiplier. It is likely that the regime's main goal in achieving nuclear weapons is to ensure its immunity.<sup>11</sup>

Iran, like any other nation, is subjected to various constraints and contradictory. It is worth noting that the depiction of Iran's policies as a dichotomy of either "pragmatic" or "ideologist" doesn't represent Iran realistically. Since no country is driven by ideology or utilitarian interests alone, every regime in every nation has constant ideologic and pragmatic considerations. Yet in each case, pragmatic or ideological considerations may be given varying weight. Pragmatism is not tantamount to moderation; it is the awareness of the cost of taking a certain step. Moreover, describing the national interest as only economically beneficial is a frequent mistake.<sup>12</sup> Iran conducts itself very pragmatically with (Christian) Armenia but avoids anything that Israelis or Westerners might see as pragmatism in relation to Israel.

Thus, subject to its national interests, Iran integrates both realism and ideology in its policy, but ideology is taken into consideration in foreign policy significantly more than by

<sup>10</sup> It is important to distinguish between 'proxies' and allies or clients. 'Proxies' are completely under Iranian subordination and are not independent. This means that Hezbollah's decision making is set by Tehran, although Hezbollah has its internal Lebanese considerations. Iran did not establish Hamas or Houthis; They are sponsored but not subjected.

<sup>11</sup> Elliot Hen-Tov, "[Understanding Iran's New Authoritarianism](#)", *The Washington Quarterly*, 30, no. 1 (2007): 163–179.

<sup>12</sup> Edward Luttwak, *Strategy: The Logic of War and Peace, Revised and Enlarged Edition* (Belknap Press, 2002): 211–214.

other countries. The Iranian national interest is influenced by real-politic considerations; however, the Islamic Republic's ideological goals are an integral part of national interest.<sup>13</sup>

## The Implications of the War in Ukraine on Iran's Grand Strategy

Iran was surprised by the Russian invasion of Ukraine. Even on this issue the Iranian regime is subjected to various constraints and is not overall supportive of Russia. Khamenei and other government officials blame NATO for the war; yet, genuine support for the actions of the Kremlin cannot be found in Iranian media.<sup>14</sup> Former president Ahmadinejad tweeted a supporting message in English for Ukraine's Jewish president Zelenskyy.<sup>15</sup> Relations between Iran and Russia existed for hundreds of years, but they have always been complex. Russia, as well as the Soviet Union, encroached on Iranian territories. To this day, these two nations are far from harmonious and mutually respectful.<sup>16</sup> The Iranian regime is aware that among Iranian people there is resentment towards Putin's regime.<sup>17</sup> This requires the regime to maintain balance and refrain from exhibiting support for the war, at least in public.

Unofficial statements of top-ranking Iranian officers give a clear impression that Iran is learning from the war in Ukraine.

1. **Nuclear deterrence must be kept** – Many commentators as well as Iranian officers determine that the invasion was possible because Ukraine decided, under US sponsorship, to give up on its nuclear arsenal (which it had upon the breakup of the

<sup>13</sup> Ebrahim Aghamohammadi, "[Bonydha-ye ideolojik-e dar Siyasat-e Khareji-ye Jumhuri-ye Eslami-ye Iran](#)" (Ideologic Elements in the Foreign Policy of the Islamic Republic of Iran), *Hokumat-e Eslami*, 85 (January 2018): 79–102; Shahruz Ebrahimi, "[Barrasi va-Asazane-ye Naqsh-e Ideoloji dar Siyasat-e Khareji-ye Iran va Payvand-e an ba Vaghegerai va Armangerai](#)" (A constructive examination of the role of ideology in Iranian foreign policy, as well as its relationship to realism and idealism), *Faslname-ye Beynalmelal va Ravabet-e Khareji* (Journal of International Relations), 4 (2009): 112–138.

<sup>14</sup> H. Amirabdollahian, "[The crisis in Ukraine is rooted in NATO's provocative actions. We do not consider resorting to war as a solution. Establishing a ceasefire and focusing on a political and democratic solution is a necessity](#)", Twitter, February 24, 2022; Khamenei website, "[The NATO Expansion is the Real Reason behind the Ukraine Crisis](#)", June 25, 2022.

<sup>15</sup> Mahmoud Ahmadinejad, "[The great nation of #Ukraine President #Zelenskyy Your honorable and almost unrivalled resistance uncovered the Satanic plots of enemies of mankind. Trust that the great nation of #Iran is standing by you,while admiring this heroic persistence](#)", Twitter, March 2, 2022

<sup>16</sup> Denis V. Volkov, "[Bringing democracy into Iran: A Russian project for the separation of Azerbaijan](#)", *Middle Eastern Studies*, 58, no. 6 (2022): 989–1003.

<sup>17</sup> "[Khaterat-e talkh, Angare-ye Iran az Hamsaye-ye Shimali Ast](#)" (Black thoughts: The image of the Northern Neighbor in the eyes of Iranians), *Ensafnews*, May 31, 2022.

Soviet Union), which was a critical mistake. If Ukraine retained its nuclear weapons the Russians would never dare to attack; therefore, nuclear deterrence must be kept.<sup>18</sup> A claim from a top-ranking Iranian military official leaves little room for doubt regarding the military destiny of the Irani nuclear program. Khamenei's representative in Qazvin, Abdelkarim Abedini, stated in his Friday sermon on February 25, 2022, that "the Americans are trying to disarm the Iranian nation, and impose the fate of Ukraine on it."<sup>19</sup> The leader's senior advisor, Kamal Kharazi, stated that Iran has the ability to develop nuclear weapons although it had not yet decided to.<sup>20</sup>

2. **The strategic importance of missiles** – The war in Ukraine proved to Iran that military capabilities are more important than international support. The Russian use of missiles is a valuable lesson for Iran. Revolutionary Guards officers observe Ukraine's inability to inflict damage on Russia for its lack of long-range missiles. The Revolutionary Guards' bulletin published an article stating that "the missiles create a balance of terror, and force diplomacy on the enemy."<sup>21</sup> It should be noted that the article also discusses Ukraine's decision to dismantle its nuclear arsenal, and additionally mentions Thomas Schelling's views on nuclear deterrence. There is no doubt that the article implies not ordinary tactical missiles, but ballistic missiles armed with nuclear warhead.

Deputy chief of staff of the Iranian army, Aziz Nasirzadeh, spoke out in an even more explicit way. According to him, the main lesson from the Ukraine war is that "the Ukrainians gave up nuclear capability while nuclear weapons provide deterrence. A crisis ensued as a result. Some of our people hold the same thoughts; they mean that we should give up on offensive capabilities and strive for peace. In today's reality, it is impossible to ignore military capabilities or deterrence. The weaker we get, the more we will be attacked." Nasirzadeh also spoke about combining Iran's missile capabilities with the support for proxies, the latter are known as the 'Axis of Resistance': "The geography of the Iranian resistance has expanded. Thanks to self-production capabilities the resistance front has expanded, so today it can produce its own weaponry."<sup>22</sup>

<sup>18</sup> ["Amir Naserzadeh: Jang-e Ukrain Darsha-ye Moheni baraye Iran Darad"](#) (Amir Nasirzadeh: The war in Ukraine may teach Iran many important lessons), *IRNA News*.

<sup>19</sup> ["Raftar-e tahghiramiz-e Amerika ba Raisejumphur-e Ukrain dars-ebrat gharbzadeha bashad"](#) (The humiliating treatment of the Ukrainian president by the United States should serve as a lesson for those who support the West), *hawzahnews*, March 16, 2022.

<sup>20</sup> [Khamenei's Foreign Policy Advisor Kamal Kharrazi: Iran Has Become a Nuclear Threshold Country](#), *MEMRI TV Videos*.

<sup>21</sup> [Arziabiy-e nashriy-e Sepa az Amuzahaye Jang-e Ukrain Chist](#) (The lessons the Irani Revolutionary Guards bulletin learn from the war in Ukrain), *donya-e-eqtesad*, February 28, 2022.

<sup>22</sup> See 18: ["Amir Nasirzadeh: Jang-e Ukrain Darsha-ye Moheni baraye Iran Darad"](#) (Amir Nasirzadeh: The war in Ukraine may teach Iran many important lessons), *Al-Alam*, February 28, 2022.

In September 2022, Iran supplied its manufactured UAVs to Russia; Russia doesn't own sufficient weapons of that grade. It's been reported that the Russians used two types of Iranian UAVs: Mohajer-6 and Shahed-136. Iran refused to comment on these reports. It is doubtful that this weapon will be Russia's strategic advantage in the war with Ukraine, but it is an opportunity for the Iranian industrial complex to test these weapons in war conditions. These are two completely different weapons: while the Mohajer-6 is an Unmanned Aerial Vehicle, the Shahed-136 is categorized as Loitering Munition.<sup>23</sup>

The war in Ukraine did not change Iran's strategic assessments, but it has persuaded the leadership that its current strategy is correct:

- The nuclear program is a strategic asset (whether it be of a nuclear threshold state or a finalized nuclear weapon). The main lesson of the war in Ukraine is that "a country like Iran must not give up its nuclear shield."<sup>24</sup> Hence, an agreement with Iran that would include irreversible concession on its nuclear shield is impossible.
- Missiles and missile supply for proxies are a strategic layer in Iran's deterrence against Israel. Thus, Iran would never agree to discuss its ballistic missile program or its regional policies, i.e., supporting resistance groups.
- The fact that Iran insists on continuing its ballistic missile development is an indirect proof of its aspiration to achieve nuclear weapons. Even though it is technically possible to develop non-nuclear long-range ballistic missiles, in practice, such development is pointless. Every nation in the world that achieved long-range ballistic capabilities has acquired nuclear weapons.

### *Iran's Naval Strategy*

The Iranian regime has never officially drawn up a military doctrine or a grand strategy, including naval strategic perceptions. One can assume that the naval strategy is under general Iranian considerations regarding the Persian Gulf. The Iranian naval strategy is born out of a need to resist the American presence in the Gulf. Since 2016, Iran adopted an offensive naval strategy and continued employing it in response to President Trump's maximum pressure policy. Furthermore, Iran instituted a forward-defense,<sup>25</sup> which can be described as defense through offense. Mohammad Pakpour, Commander of the

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<sup>23</sup> Douglas Barrie. "[Explainer: Russia Deploys Iranian Drones](#)", *The Iran Primer*, October 12, 2022.

<sup>24</sup> Ukrain, Asr-E Moshakha, na Goftamanaha: "[Ukraine, it is an era of missiles, not 'that of talks'](#)", *Hamshahri*, February 22, 2022.

<sup>25</sup> Ali Bagheri Dolatabadi & Mehran Kamrava. "[Iran's changing naval strategy in the Persian Gulf: Motives and features](#)", *British Journal of Middle Eastern Studies*, July 27, 2022.

Revolutionary Guards Ground Forces, determined that "Iran's doctrine in its essence is defensive, but operatively and tactically it is offensive."<sup>26</sup>

According to leader Khamenei, the Iranian navy is the frontline of state defense.<sup>27</sup> It is unclear what are the implications of those words to the Iranian navy, but there are a few new characteristics of Iranian offensive perceptions in maritime space that can be pointed out:

1. The Revolutionary Guards fleet is based on speedboats or light ships capable of harassing American ships or other national's vessels.
2. Most naval platforms are capable of carrying missiles and air-defense systems that support naval operations.
3. Iranian ships patrol several disputed islands that both Iran and the United Arab Emirates claim.
4. Iranian naval forces conduct exercises that simulate offensive actions. It can be concluded that the naval strategy is evolving from merely defending territorial waters to offensive actions against enemies.<sup>28</sup>

In September 2022, the Revolutionary Guard unveiled a new missile corvette named '*Shahid Solemani*'. This corvette is the first of three catamarans with stealth abilities. Admiral Alireza Tangsiri, commander of the Revolutionary Guards Navy, announced that this vessel has a 9,000 km range; far exceeding the limits of the Persian Gulf.<sup>29</sup> In 2018, the Iranian parliament legislated the Naval Industries Merger Act. According to this law, all the companies that used to manufacture ships, instruments, or equipment intended for the navy were merged into one company named "The Marine Industries Organization."<sup>30</sup>

The Iranian navy along with the rest of the armed forces integrates into the overall asymmetric perception. As such, it has been satisfied with harassing American ships sailing the Gulf, as well as other ships. These recurring incidents follow the same fixed

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<sup>26</sup> "[Iran's Military Strategy Offensive at Operational, Tactical Levels: IRGC Commander](#)", *Tasneem News Agency*, December 22, 2018.

<sup>27</sup> "[Emam Khamenei: Niruy-e Daryai Dar Khatt-e Moghadam-e Defa' Az Keshvar Ast](#)" (The Navy is the Forefront Defense of the Country), *Tasnim News Agency*, November 28, 2017.

<sup>28</sup> Dolatabadi & Kamrava, 2022.

<sup>29</sup> Farzan Nadimi, [New Iranian Warship Signals Longer Maritime Reach, More Aggressive Strategy](#), *Washington Institute for Near Eastern Policy*, September 16, 2022.

<sup>30</sup> [Ghanun-e Edghram-e Sherkatha va-Tashkil Sazman-e Sanay-e Daryaiy-e Niruha-ye Mosalah](#), *Majles Website*, January 19, 2019.

script: fast Revolutionary Guards ships approach American battleships.<sup>31</sup> In principle, the Iranian navy can also harass Israeli merchant ships in the Persian Gulf.<sup>32</sup> Due to technical and geopolitical constraints, there is no correlation between Iran's hegemonic ambitions and its existing naval abilities. It should also be considered that Iran's naval training has a role in showcasing; however, they don't necessarily express Iran's true abilities or intentions. In spite of the above, Iran is dedicated to strengthening its naval capabilities in the coming years.

## Conclusion

Regardless of the nuclear deal, Iran is convinced of its strategic choices to increase deterrence through the military nuclear program. The Iranian deterrence perception relies on a wide array of various missiles, and Iranian arsenal in the hands of Hezbollah and other Shiite militias which serve as an important layer of asymmetric ability. UAVs are the second component of the asymmetric capability. The war in Ukraine illustrated to Iran that there can be no deterrence without missiles. Judging by unofficial statements of senior Iranian officers, the main lesson from this war is that Iran cannot let go of its nuclear deterrence. Such statements prove that the Iranian nuclear program is in fact a military program. The Iranian navy supports the overall strategy and integrates into the asymmetric perception.

Iran doesn't have a written doctrine or a composed strategy, but statements of its leaders express plainly general principles of actions that the Iranian regime might take. The revolutionary nature of the Iranian regime forces it into a confrontation with the USA and Israel. This makes Iran seem radical and aggressive, in addition to its ambitions in the Persian Gulf and the Middle East; however, Iran's leader is well aware of his nation's various limitations and constraints, whether it be from within or in the international arena. Navigating between two contradicting trends requires, on one hand, credible behavior regarding the confrontation with Israel, and support for Middle Eastern terrorist groups, and on the other hand, trying to avoid immediate escalation.

In light of these principles, the lack of a nuclear agreement or the chance of reaching a new one would not change Iran's behavior. Iran will continue its policy, and in the process devote resources to expanding its naval strength.

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<sup>31</sup> Jared Szuba, "[Iran's IRGC Navy harassed US ships in Strait of Hormuz, US says](#)", *Al-Monitor*, December 6, 2022.

<sup>32</sup> Shlomo Guetta and Motti Elharar, "[The Development of the Iranian Naval Branch in Recent Years and the Implications for Israel and the Middle Eastern Countries](#)", in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy and Strategy Research Center, University of Haifa, 2022), pp. 139–163.

## **Section 3: Political Aspects in the Eastern Mediterranean**

The three articles in this section discuss Middle Eastern affairs. The first discusses the maritime boundary agreement between Israel and Lebanon, analyzes the negotiations over the preceding decade, and highlights its achievements and the challenges that it poses to Israel. The other two articles discuss Turkey. The first concerns changes in Turkish foreign policy in 2022, including the renewal of relations with Israel and the continued conflict with Greece and Cyprus over maritime boundaries, all this in the context of the restoration of Turkey's important geopolitical position for the United States and the West, through the closure of the Turkish straits to military vessels since the outbreak of the Russo-Ukrainian war. The second article about Turkey is a guest essay courtesy of TESPAM, a Turkish research institute, which presents their position on the centrality of Turkey in the European energy market, especially in light of the desire of European Union nations to disconnect from Russia as their primary energy provider. The article proposes Turkish-Israeli cooperation as a possible corridor for the transfer of natural gas to Europe, if only as a partial solution to Europe's energy needs.





## The Delimitation Agreement Between Israel and Lebanon – Challenges and Achievements

*Benny Spanier and Orin Shefler*

On October 27, 2022, the Government of Israel approved an agreement for the permanent delimitation of a maritime boundary line ("MBL") between Israel and Lebanon and immediately thereafter, at the U.N. base in Naqoura, representatives of both Israel and Lebanon signed the necessary declarations to officially approve the agreement. The negotiations leading to this agreement were mediated and facilitated by the United States. The consequential maritime picture resulting from the signing of the agreement remains complicated but the signing of the agreement was an opportunity seized within a very limited timeframe following lengthy diplomatic negotiations between two "enemy states" under the mediation and facilitation of the United States.

The agreement ultimately determines four maritime coordinates (or points) through which the new Israeli-Lebanese MBL passes. The agreement adopts a very pragmatic and practical approach, which will allow for the future development of the Sidon (Qana) offshore hydrocarbon prospect (a.k.a. "Block 9 Prospect") which straddles the agreed MBL between the two sides.

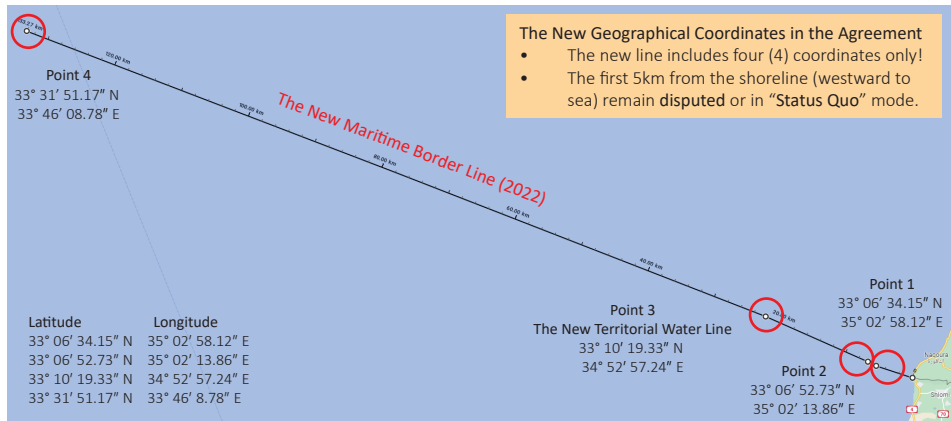


Fig. 1: The MBL between Israel and Lebanon comprising four points (in red circles)

It is the nature of negotiations that each side makes gains but must also make compromises. This article sets out to examine the agreement from an Israeli perspective as it pertained at the time of writing (November 2022) and looking ahead; it does not purport to examine the conduct of the negotiations over the years.

First, we shall review in general terms the main events during the years of negotiations leading to the agreement; then, we shall analyze the terms of the agreement with an eye on territory and resources, and we shall note the achievements and challenges as we understand them. Finally, we shall present several forward-looking conclusions arising out of the agreement, which the State of Israel would do well to explore.

Before developing the matters at hand, we recall that in the year 2019, the Maritime Policy & Strategy Research Center at the University of Haifa ("HMS") published a monograph titled *By Peaceful Means – An Examination of the Conflict over the Maritime Boundary between Israel and Lebanon from the Perspective of Maritime Law*.<sup>1</sup> Now that the agreement has been signed, we believe that it delivers clear achievements to both sides in terms of regional and energy security and that it will contribute greatly to the stability of the regional maritime domain.

## Historical Background: A Chronology of Negotiations

Israel and Lebanon do not have a peace treaty between them and have never agreed on an international border, either on land or at sea.<sup>2</sup> Over the years, the two states have commonly referred to the British-French land border line from 1923 as their land boundary ("LBL"). The aforementioned British-French LBL was negotiated between Britain (which controlled Palestine at that time) and France (which controlled Syria and Lebanon at that time) and was intended to represent the LBL on which the ultimate international border between Israel and Lebanon would be based when the time came.<sup>3</sup>

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<sup>1</sup> Benny Spanier, *By Peaceful Means – An Examination of the Conflict over the Maritime Boundary between Israel and Lebanon from the Perspective of Maritime Law* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2019) [Hebrew].

<sup>2</sup> Haim Srebro, *Israel's Borders Today* (Tel Aviv: Survey of Israel, 2012), 72 [Hebrew]; Amos Harel, "[Thirteen Israeli Border Points Raising Tensions with Lebanon](#)," *Haaretz*, February 27, 2018.

<sup>3</sup> Gideon Biger, "Geographical and Political Issues in the Process of Determining the Northern Border of Eretz-Israel during the Mandate Period," in Avshalom Shmuely, Arnon Sofer and Nurit Kliot (eds.), *Land of the Galilee* (Haifa: The Society for Applied Research, University of Haifa, 1983), 427 [Hebrew]. The demarcation of the northern border of the Land of Israel began with the separation of the areas that would be overseen by France and Britain, respectively, according to the 1916 Sykes-Picot Agreement. The demarcation process continued with negotiations, which concluded in December 1920. Specific agreements were subsequently reached to ease local conditions in 1923–1928. Giora Eiland, *No Sleep at Night: A Biography* (Rishon LeZion: Yediote Books, 2018), p. 230 [Hebrew]. Moshe Brawer, *The Northern Border of Eretz-Israel and its Demarcation during the Mandate Era* (Haifa: [no publisher], 1970), pp. 3–6 [Hebrew].

Reliance on the British-French LBL was also the case in each of (a) the 1949 Armistice Agreements,<sup>4</sup> (b) the Mixed Armistice Commission activities (MAC), (c) the May 17, 1982 Agreement between Israel and Lebanon, and (d) the discussions with the United Nations ahead of the demarcation of the "Blue Line" in the year 2000 pursuant to the Israel Defense Forces ("IDF") withdrawal from the self-declared security zone in southern Lebanon.<sup>5</sup> The current LBL was drawn in the year 2000 by the United Nations for the purpose of the IDF withdrawal, whereby the United Nations cartographical officials based the line on the Mandate-era British-French LBL from 1923.<sup>6</sup> Since Israel, Lebanon, the United Nations, and the international community have all given their agreement in principle to the route of the current Israel-Lebanon LBL, we may see this as a positive basis for an agreed land border line when peace is finally made between the sides, with minor adjustments to be agreed between the parties.

To date, there remain only thirteen points of contention between Israel and Lebanon on their LBL, the most relevant of which for the purpose of the MBL and the maritime delimitation agreement is the location of the westernmost point located on the coast at the Rosh Hanikra location,<sup>7</sup> which incidentally is also the starting point for the MBL, westward into the sea. This land point at Rosh Hanikra was not agreed upon as part of the Mandate-era British-French LBL and has never been agreed between the parties.<sup>8</sup>

When the IDF withdrew its forces from the Security Zone in southern Lebanon in the year 2000, it had to determine for itself a suitable MBL for the purpose of preventing hostile activity from the sea against Israel, and in order to mark a "no-go-area" for Lebanese fishermen along their southern MBL. During this process, the MBL marking

<sup>4</sup> [Israeli-Lebanese General Armistice Agreement](#), signed on March 23, 1949.

<sup>5</sup> Srebro, *Israel's Borders Today* [Hebrew].

<sup>6</sup> Ibid, p. 71. For more see: Chilik Horowitz and Yisrael Loger, [Department of Mandate Measurements and Borders of Eretz-Israel](#), Survey of Israel Center, on the Survey of Israel website [Hebrew]

<sup>7</sup> Harel, "Thirteen Israeli Border Points Raising Tensions with Lebanon."

<sup>8</sup> Brawer, *The Northern Border of Eretz-Israel and its Demarcation during the Mandate Era*, p. 7 [Hebrew]. The British representatives were able in the negotiations to shift the border northward and position it at the southern opening of the Ladder of Tyre. Had the border commission remained faithful to the instructions in the agreement from 1920, the border would have hit the sea at least 1km south of its present location. Biger, "Geographical and Political Issues in the Process of Determining the Northern Border of Eretz-Israel during the Mandate Period," p. 440 [Hebrew]. The Rosh Hanikra area was not considered significant at the time. In the negotiations between the sides, the emphasis was placed on geographic and settlement considerations, most importantly farmland, water sources, grazing lands, roads, agricultural development, etc. For this reason, the point was moved and was not precisely demarcated. Srebro, *Israel's Borders Today*, p. 71 [Hebrew].

Israel's territorial waters was also defined, solely for security needs provided for by the Israeli Navy; this was referred to as the buoy line (since it was marked with buoys).

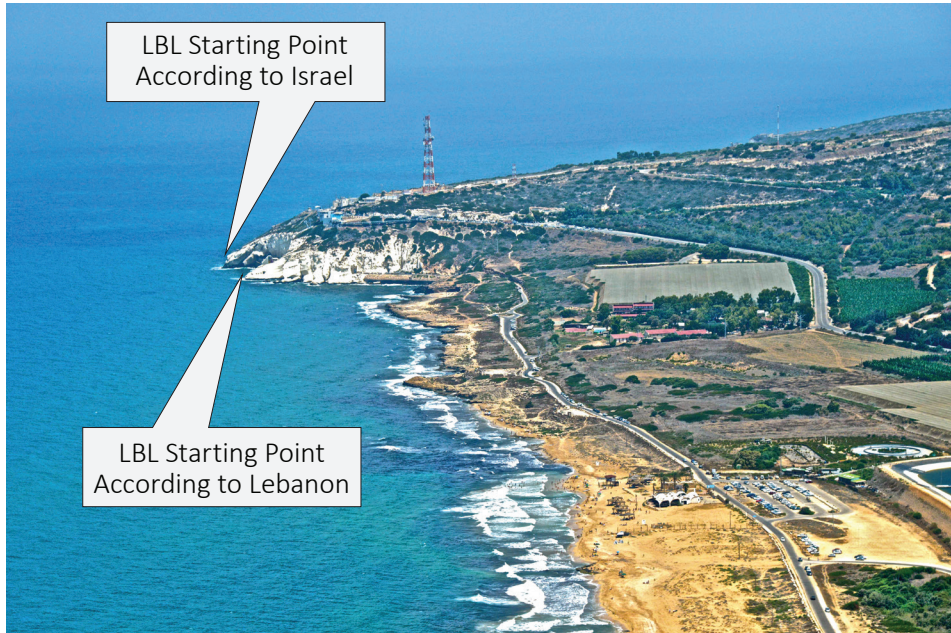


Fig. 2: The present dispute over the starting point of the MBL<sup>9</sup>

In time, and with the discovery of Israel's offshore gas reserves in the Mediterranean Sea during the first decade of the 2000s, the MBL was extended slightly to carve out Israel's exclusive economic zone ("EEZ"). It bears noting that from Israel's perspective, the considerations for defining the Israel-Lebanon MBL were primarily reactive and in response to evolving events, namely the IDF's withdrawal from Lebanon and the need to defend Israel's offshore gas reserves. The State of Israel did not engage in any long-term strategic or geopolitical thinking about the many implications of the MBL at the time.<sup>10</sup>

In order to establish its EEZ, Israel chose to initially rely on two existing bilateral maritime agreements which were previously signed between Cyprus and its neighbors. (These agreements were signed before Israel signed its own maritime agreement with Cyprus.) Cyprus signed these aforementioned agreements with Egypt and Lebanon respectively, but they also had the effect of defining Israel's EEZ in themselves.

<sup>9</sup> Image: Yigal Dekel, 2013. *Spanier, By Peaceful Means* [Hebrew].

<sup>10</sup> [Protocol 127 of the Knesset Foreign Affairs and Defense Committee](#), October 19, 2022, 3 [Hebrew].

The first agreement, namely between Cyprus and Egypt, defined their mutual MBL and respective EEZs and was signed on February 17, 2003. It entered into effect on March 7, 2004.<sup>11</sup>

Thereafter, the second agreement, a separate Cypriot-Lebanese maritime agreement, was signed in January 2007; in it, Cyprus and Lebanon agreed on their mutual MBL and their respective EEZs. This Cypriot-Lebanese maritime agreement was ratified by Cyprus, but not by Lebanon – and has therefore not been deposited with the United Nations.<sup>12</sup>

On December 20, 2010, Israel and Cyprus finally signed a maritime agreement delimiting their MBL and defining their respective EEZs.<sup>13</sup> The preamble to the Israel-Cyprus agreement states that they have delimited their exclusive economic zones in pursuance with the United Nations Convention on the Law of the Sea (UNCLOS).<sup>14</sup>

On its western flank, the Israel-Cyprus MBL follows the median line principle between Israel and Cyprus (fig. 3).<sup>15</sup> On its northern flank, the area is delimited by point 1, which is the southernmost point in the unratified Cypriot-Lebanese maritime agreement and is also the northernmost point in the Israeli-Cypriot agreement.<sup>16</sup>

The latter Israeli-Cypriot agreement contains a reservation stating that point 1 is non-binding and open to future negotiations between the states.<sup>17</sup> Moreover, paragraph 3 in

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<sup>11</sup> [Agreement between the Republic of Cyprus and the Arab Republic of Egypt on the delimitation of the Exclusive Economic Zone](#), signed in Nicosia on 17 December 2010 (entry into force: 25 February 2011). Available on the U.N. website. Haim Srebro, "The Border of Money," *Ma'arachot* 461 (2015), 8. On the requirement to deposit a ratified treaty with the United Nations, see: United Nations Convention on the Law of the Sea of 10 December 1982, 1833 U.N.T.S.3. Para. 75(2): "The coastal State shall give due publicity to such charts or lists of geographical coordinates and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations."

<sup>12</sup> Haim Srebro, "The delimitation of the Exclusive Economic Zone (EEZ) between Israel and Cyprus," *Horizons in Geography* 88 (2016), pp. 47-48 [Hebrew].

<sup>13</sup> Israel-Cyprus agreement.

<sup>14</sup> *Ibid*, preamble.

<sup>15</sup> *Ibid*, 1(c); UNCLOS 74(1): "The delimitation of the exclusive economic zone between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution."

<sup>16</sup> Nadia Tzimerman, "The Dispute over the Israel-Lebanon Maritime Border—Legal Perspectives" in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2017/18* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2018), pp. 139-146; Srebro, *Israel's Borders Today*, 68 [Hebrew].

<sup>17</sup> Srebro, "The Border of Money," p. 10 [Hebrew].

the Israeli-Cypriot agreement states that if either state (Israel or Cyprus) should decide to conduct negotiations with a third-state about that third-state's EEZ (such as Lebanon, for example), it would have to consult the other state before reaching an agreement and check whether it was delimited with reference to points 1 and 12.

As early as July 9, 2010, and October 11, 2010, before the signing of the Israel-Cyprus agreement, Lebanon deposited a statement with the United Nations Secretariat listing the maritime border coordinates of the southern MBL of its EEZ in accordance with paragraph 75(2) of UNCLOS, which requires states to publicize this information through the United Nations.<sup>18</sup> The Lebanese MBL extended from point 18, adjacent to Lebanon's coastline, to point 23 located in the middle of the eastern Mediterranean Sea, thus creating the line referred to as line 23.

Later, on June 20, 2011, Lebanon once again deposited letters with the U.N. Secretariat stipulating that the Israeli-Lebanese MBL passes between point B1 on the Rosh Hanikra coastal shore and point 23, which in its view was the midpoint equidistant between the three countries (i.e., Israel, Cyprus and Lebanon).<sup>19</sup> Point 23 lies ten miles southwest of point 1 (fig. 4). In its letters to the United Nations, Lebanon clarified that point 1 was valid only in relation to the agreement demarcating the boundary between the Lebanese and Cypriot EEZs and did not constitute an MBL between Israel and Lebanon.<sup>20</sup> In the letter, Lebanon objected to the manner in which Israel and Cyprus had made use of point 1, which is identical to the southwestern tip in its agreement with Cyprus, for the purpose of delimiting an MBL between Israel and Lebanon.

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<sup>18</sup> Deposit by Lebanon of Charts and List of Geographical Coordinates of Points Pursuant to Article 75, Paragraph 2 of the Convention. Available on the [UN depository of submitted documents by Lebanon](#). Note that we are not speaking about the depositing of the agreement with Cyprus, only a unilateral definition of Lebanon's southern border.

<sup>19</sup> Ibid, letter dated June 20, 2011, recalling that Lebanon already deposited its boundary line in 2010: "I write to you with regard to the exclusive economic zone of Lebanon. On 9 July 2010 and 11 October 2010, Lebanon deposited with the United Nations the geographical coordinates of, respectively, the southern and southwestern maritime borders of that zone. The southern maritime border extends from point B1 on the shore at Ra's Naqurah, the first point on the 1949 Israeli-Lebanese General Armistice Agreement table of coordinates, to point 23, that is equidistant between the three countries concerned, and on the coordinates of which all must agree. The geographical coordinates of point 23 are latitude 33°31' 51.17", longitude 33°46' 08.78". Point 1 does not therefore represent the southern end of the median between the Lebanese Republic and the Republic of Cyprus that separates the exclusive economic zones of each country, and can only be viewed as a point that is shared by Lebanon and Cyprus. It is not a terminal point and therefore may not be taken as a starting point between Cyprus and any other country, particularly given the fact that it is just one point like any of the others on this line."

<sup>20</sup> Ibid.

On July 12, 2011, the Israeli Mission to the United Nations sent the U.N. Secretariat a list of six maritime coordinates delimiting Israel's northern MBL as determined by the Government of Israel by the applicable government decision made on July 6, 2011.

Point 1 on the Israeli MBL is the point that appears in the agreement between Israel and Cyprus on the delimitation of their mutual EEZs, and which is the same as point 1 in the maritime agreement between Lebanon and Cyprus.<sup>21</sup>

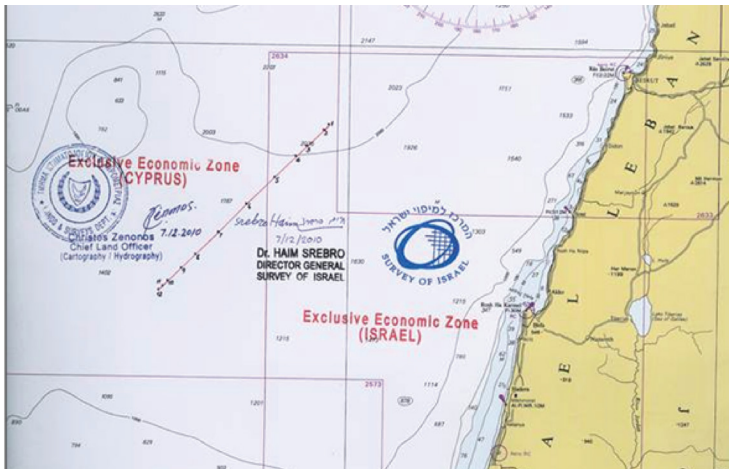


Fig. 3: Map delimitating the Israeli and Cypriot MBL and EEZs, with twelve points<sup>22</sup>

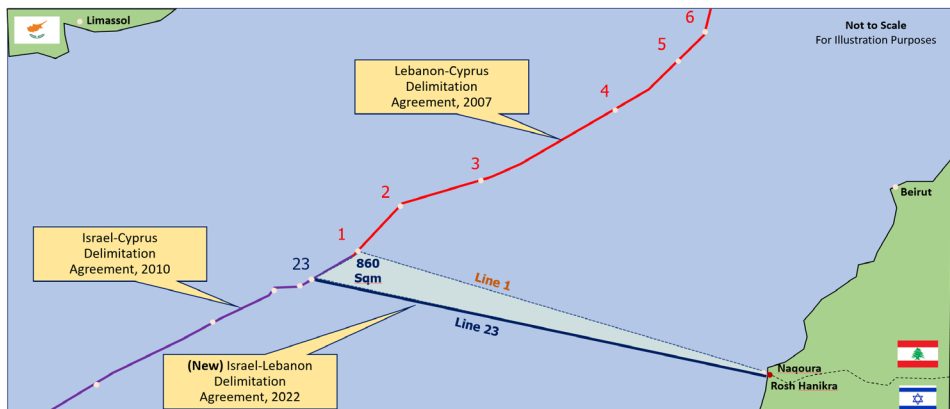


Fig. 4: Map of the disputed triangle between Israel (Line 1) and Lebanon (Line 23)

<sup>21</sup> [List of Geographical Coordinates for the Northern Limit of the Territorial and Exclusive Economic Zone of the State of Israel.](#)

<sup>22</sup> Source: Annex 2 of the Israeli-Cypriot agreement

In early 2011, Lebanon asked the U.K. Hydrographic Office (UKHO) to conduct research on its behalf and to produce recommendations about the correct MBL on the southern border with Israel. On August 17, 2011, the UKHO submitted its work to Lebanon and among its observations was that point 23 was based on a hydrographic and legal error; it recommended two alternative lines, one of which leads to point 29, south of 23.

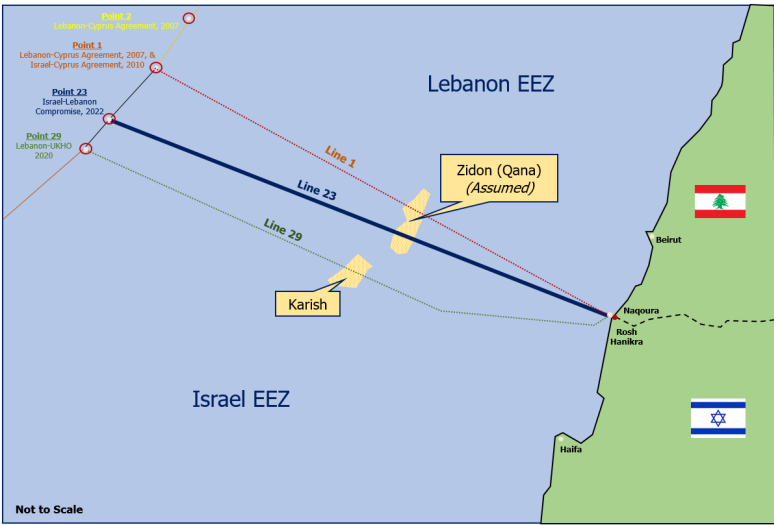


Fig. 5: Map of line 29 with reference to lines 1 and 23 (including the expected location of the Karish and Sidon/Qana fields)

In Lebanon’s response to Israel’s unilateral declaration of its northern MBL (i.e. Line 1), the route of which is located at northernmost part of Israel’s EEZ, Lebanon chose not to submit as a countermeasure the UKHO’s position to the United Nations; and as such, on September 3, 2011, Lebanon eventually chose to submit to the United Nations the coordinates of line 23 as its official position on the matter of the Israel-Lebanon MBL.<sup>23</sup> Officially, the Government of Lebanon has never actually presented to the United Nations an official position in reliance on the UKHO’s proposal for line 29, but neither had Lebanon ever forgone this option—that is, of course, until the signing of the current delimitation agreement between Israel and Lebanon. As such, ultimately, Lebanon’s submission of line 23 to the United Nations created a disputed triangle between line 1 and line 23, encompassing 860 km<sup>2</sup> (332 square miles) at sea (see fig. 6), over which the parties were required to negotiate.

<sup>23</sup> Letter dated September 3, which stated, *inter alia*: "I am writing to you with regard to the claims deposited on 12 July 2011 by the Israeli mission concerning the geographical coordinates of the northern part of the territorial waters and exclusive economic zone that it alleges belong to Israel."



At this stage, in 2011, the United States took a mediation and facilitation role in the conflict at Israel's request, and with Lebanon's consent. In 2012, U.S. special envoy Frederic Hof proposed dividing the triangular area of dispute, and at the end of this round of discussions, the sides had almost reached certain agreements that would divide the triangular area such that Lebanon would receive 56 percent of it and Israel would receive the rest. It was also decided at that point in time to begin the MBL from a point three miles out at sea and not from the coastline in order not to touch the point of contention on the shore at Rosh Hanikra. Regrettably, these talks did not bear fruit and the special envoy was subsequently replaced, to no avail.<sup>24</sup>

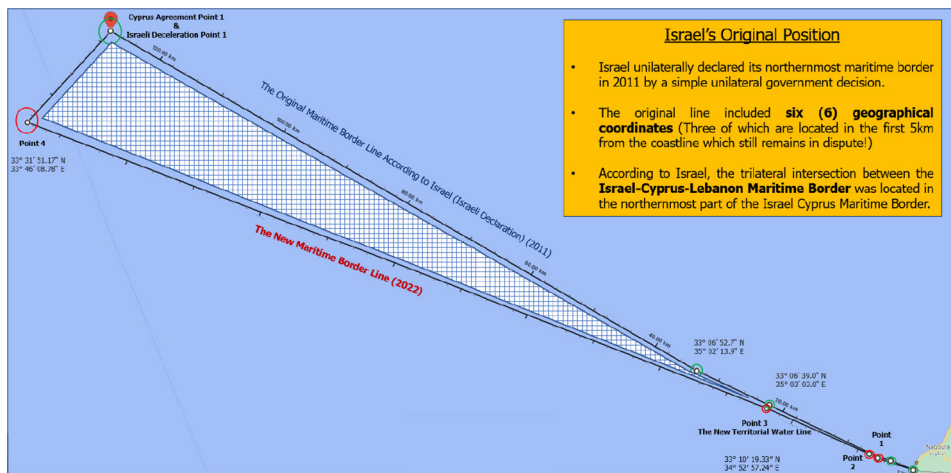


Fig. 6: The disputed triangle—860 km<sup>2</sup> (332 square miles): line 1 vs. line 23

In October 2020, five meetings were held between Israeli and Lebanese teams at the United Nations base at Naqoura. In the framework of these indirect talks, which were again mediated and facilitated by the United States and the United Nations, an attempt was made to reach an agreement in the dispute over the location of the MBL between the two states. These negotiations failed once again and were not subsequently resumed. It appears that during this round of talks, the Lebanese delegation first presented to the sides the principles of line 29 and claimed that line 23 was actually incorrect—all in reliance on the UKHO's recommendations to the Government of Lebanon.<sup>25</sup>

<sup>24</sup> Frederic C. Hof, "[Maritime Mediation Between Lebanon and Israel](#)," *New Lines Magazine*, December 4, 2020.

<sup>25</sup> Benny Spanier, *Changes in Lebanon's Position in the Maritime Boundary Conflict with Israel in October 2020—A Critical Examination* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2021), pp. 2, 7–8 [Hebrew].

On August 10, 2021, U.S. Secretary of State Antony Blinken announced the appointment of Amos Hochstein as the new U.S. special envoy and coordinator for international energy affairs. It was decided that he would address the MBL conflict between Israel and Lebanon. He immediately launched his mediation and facilitation efforts, and from media reports, it appears that this time, the intention was to address the issues of territory and resources together as one.

Due to severe time constraints dictated by the end of the Lebanese president's tenure in October 2022 and the upcoming elections in Israel, which would be held on November 1, 2022, the negotiations became especially intensive. Indeed, on October 12, 2022, the Government of Israel ultimately approved the delimitation agreement between Israel and Lebanon and submitted the agreement to the Knesset for review until its ratification by the Government on October 27, 2022. In the meanwhile, the Israeli Supreme Court rejected several petitions against the nature of the approval process carried out by the Government of Israel.

On October 19, 2022, the Foreign Affairs and Defense Committee at the Knesset held a deliberation about the delimitation agreement between Israel and Lebanon during the time that the agreement was submitted by the Government for the Knesset's review. We note that at this deliberation, the Israeli national security advisor, the director-general of the Ministry of Foreign Affairs, and the director-general of the Ministry of Energy each explained the principles of the agreement to the committee and described the manner in which it was achieved and its implications. Their remarks at that meeting shed light on the negotiation process and the achievements, as they saw them at the time.<sup>26</sup>

The national security advisor noted the instructions that the Government had given the negotiation team during the process, namely: (a) to fully safeguard the State of Israel's security interests by delimitating an agreed international MBL; (b) to create a strategic equilibrium based on the principle of "Platform vs. Platform" (i.e. a balance of interests whereby Israel could position offshore infrastructure on its side of the MBL, and Lebanon could do the same on its side, such that there remained a symmetry of security interests, which could act to deter attacks on this infrastructure by either side, in a way that would prevent any deterioration into an unwanted escalation or a reality of routine frictions); and (c) to guarantee the security of Israel's national energy infrastructure and the continuity of its energy supply. In other words, there was to be no interference with gas extraction from the Karish gas field located in the vicinity of the Block 9 Prospect, which straddles the Israeli-Lebanon MBL.<sup>27</sup> The director-general of the Ministry of Foreign Affairs also

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<sup>26</sup> Protocol 127 of the Knesset Foreign Affairs and Defense Committee, 3–17 [Hebrew].

<sup>27</sup> Protocol 127 of the Knesset Foreign Affairs and Defense Committee, 7, 36 [Hebrew].

noted the importance of the establishment of an agreed international maritime border line with an enemy state.<sup>28</sup>

## Achievements and Challenges in the Agreement – The Israeli Perspective

### *Delimitation of an MBL between Israel and Lebanon*

The agreement comprises four sections and four annexes. The first section of the agreement delaminates the MBL by identifying four maritime coordinates (or points), each of which was formally submitted to the United States and the U.N. Secretary General by both sides.

The agreement detaches the question of the MBL from that of the starting point of the LBL at Rosh Hanikra for the purpose of the agreement alone without any prejudice to the sides' legal claims on this matter.

The route of the Israeli-Lebanese MBL is based on two elements: (a) the route of the "buoy line" (i.e., the line drawn from the land point at Rosh Hanikra to the first coordinate of the MBL, westward (see fig. 7), and (b) the route of the MBL, marked by four maritime coordinates (points), which begins at the end of the buoy line and extends all the way to point 23 at the western flank of each side's EEZs (see figs. 1, 5, and 6).<sup>29</sup>

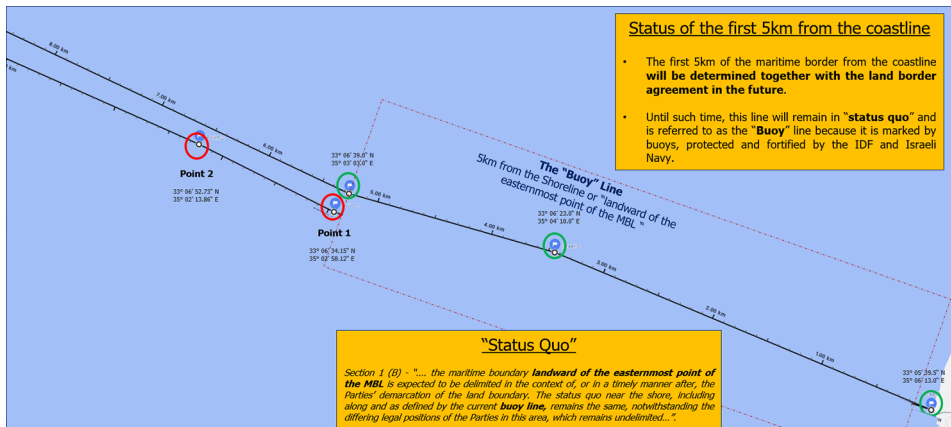


Fig. 7: Map of the "Buoy Line"

<sup>28</sup> Protocol 127 of the Knesset Foreign Affairs and Defense Committee, 46 [Hebrew].

<sup>29</sup> Israeli-Lebanese delimitation agreement, Section 1(1–4).

### *Achievements*

The MBL serves Israel's security interests as defined by the Government of Israel and other state authorities including the National Security Council, the Israel Defense Forces, and the Israeli Navy. This is the first time that Israel has signed a MBL agreement with an enemy state, despite this not being a peace treaty between the sides. The agreement stipulates that the MBL establishes "a permanent and equitable resolution of their maritime dispute."<sup>30</sup> The maritime coordinate points of the MBL have been deposited with the United Nations and secure international validity for the agreement.

The MBL effectively terminates Lebanon's claims to any maritime territory or resources in Israel's EEZ and as such, also waives its claim to point 29 as made according to the UKHO recommendations.

### *Challenges*

The MBL leaves untouched the dispute with Lebanon about the buoy line, stating that "the Parties agree that the status quo near the shore, including along and as defined by the current buoy line, remains the same, notwithstanding the differing legal positions of the Parties in this area, which remains undelimited." This issue must still be determined in the future by agreement of both sides concerning the starting point of the LBL from the shore starting at Rosh Hanikra. Not only that, but the agreement stipulates that the maritime coordinates (points) deposited with the United Nations supersede any of the sides' previously deposited coordinates with the United Nations for the purpose of their MBLs. However, on the issue of the buoy line, the Lebanese insisted on not rescinding their position about maritime points 18 and 19 (located near the shore), which had been deposited with the United Nations along with all the other points that they maintain serve as their starting point of the MBL.<sup>31</sup> In other words, at least with regard to the buoy line, the agreement does not end the conflict. The starting point of the MBL will become a point of contention if and when a permanent LBL is negotiated between the parties in the future, casting doubt on the continuation of negotiations – and perhaps even causing a deterioration of the situation around the route of the LBL. This would contravene the objectives that Israel set itself for this agreement.

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<sup>30</sup> Ibid, para. 1(5): "The Parties agree that this Agreement, including as described in Section 1(B), establishes a permanent and equitable resolution of their maritime dispute."

<sup>31</sup> Protocol 127 of the Knesset Foreign Affairs and Defense Committee, 10 [Hebrew].

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## Developing the Block 9 Prospect (a.k.a. the Sidon or Qana field)

The second section of the agreement addresses the location of the cross-border gas and petroleum field known as Block 9 which straddles the MBL. The agreement formalizes the principles for the development of the Block 9 Prospect. The agreement provides for separate commercial agreements to be signed in the future, which will ultimately determine, *inter alia*, the identity of the developing entities that will be granted the rights to develop the Block 9 Prospect and what mechanisms will govern its commercial cooperation.

### *Achievements*

The agreement specifically addresses the potential for energy extraction from the Block 9 Prospect, about which there is already plentiful technical information from previous maritime surveys carried out in the area. The existing information about the Block 9 Prospect suggests that most of the gas in the field is probably on the Lebanese side of the new MBL, and only a smaller portion lies on the Israeli side. The agreement contains a joint declaration that the sides "understand that there is a hydrocarbon prospect of currently unknown commercial viability that exists at least partially in the area," which appears to straddle the MBL. There are no precise numbers that can be used as points of reference in the agreement on this matter, or any other benchmarks to rely on. The agreement does not stipulate the division of rights and obligations in relation to the development of Block 9 Prospect and the gas field that straddles the MBL between Israel and Lebanon, and the agreement contains no commitment by the Government of Lebanon to cooperate directly with Israel.

Nevertheless, the agreement clearly states that Israel is entitled to a share of the economic rights in the Block 9 Prospect, inasmuch as it lies beyond the MBL – a matter that had not been accepted by the Lebanese until the signing of the agreement. Although the media seems to have settled on the claim that this constitutes approximately 17 percent of the total area of the cross-border gas field, the actual size of the gas field in the Block 9 Prospect and any economic right entitlements attached thereto will only be determined after future exploratory studies and the conclusion of an agreement to develop the field with the operator of the Block 9 Prospect.

Agreeing on the "rules of the game" with respect to developing the Block 9 Prospect is a clear achievement for both sides. Although Lebanon has a clear interest in developing the Block 9 Prospect as quickly as possible, experience has shown that this sort of agreement can be difficult to obtain. Israel and Cyprus, for example, have not yet managed to reach an agreement, after ten years of negotiations, about the division of economic rights for

the Aphrodite gas field, which also straddles their MBL, so arrangements for the division of entitlements from the gas field in the present agreement is a positive step forward, which will prove to be critical in the race to develop the Block 9 Prospect in the future.

Another significant achievement for Israel in connection with the development of the Block 9 Prospect is that the agreement explicitly defines the commercial profile of the international corporations that will be entitled to lead this development; specifically, among other things, the partners involved may not be subject to international sanctions. It bears noting that recently, the Russian oil and gas firm Novatek returned to the Government of Lebanon all of its holdings in Block 9, representing 20 percent of the rights thereto, and has quit the project. At the time of writing this report, it had not yet been decided, who will permanently enter the project in their place.

The creation of a framework that enables Israel to realize its economic rights in this potential gas field represents an achievement for Israel. The agreement stipulates that "Israel will be remunerated by the Block 9 Operator for its rights to any potential deposits in the Prospect and to that end, Israel and the Block 9 Operator will sign a financial agreement prior to the Block 9 Operator's Final Investment Decision" ("FID"). The negotiations on this matter will be held directly between Israel and the Block 9 Operator who will ultimately be responsible for transferring to Israel any compensation to which Israel will be entitled for its economic rights to the gas field.

Importantly, Lebanon insisted that it would not be a party to any agreement with Israel on this matter and that the entire Block 9 Prospect would be "developed by Lebanon's Block 9 Operator exclusively for Lebanon", consistent with the terms of this Agreement, and in a manner that shall not affect Lebanon's agreement with the Block 9 Operator, and the full share of its economic rights in the Prospect".<sup>32</sup> On the Israeli side, the Block 9 Prospect economic rights will most likely be managed by the Government of Israel on its own or by means of a license or lease granted to a third party.

### *Challenges*

The agreement between Israel and the Block 9 Operator will be a commercial agreement which will reflect the understandings between the two states. At present, there are still several information gaps between the various parties about the technical details of the Block 9 Prospect, which may seriously impede the formation of a binding economic agreement in the future.

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<sup>32</sup> Israeli-Lebanese maritime agreement, section 2(5).

Moreover, a legal regime asymmetry has now emerged in light of the MBL. Thus, for example, whereas the taxation regime governing the profits from the Block 9 Prospect on the Israeli side is already known and set in place after years of commercial experience with royalties from natural resources, Lebanon is still in the very early stages of developing a gas sector and there are questions around the tax regime to which the gas field will be subjected on its side. If the Government of Lebanon decides in the future to impose upon the Block 9 Operator especially high taxes on profits attributed to the gas field with the intent of maximizing its own revenue streams, then it may jeopardize the entire agreement. In other words, even though Israel and Lebanon are not directly linked through this gas field contractually, each state's conduct with respect to the Block 9 Operator will affect the manner in which the prospect will be developed and operated.

Another challenge concerns the level of compensation and royalties that Israel will actually receive in practice. Although the agreement makes clear the geographic area that falls under Israel's jurisdiction, after a final, three-dimensional mapping of the Block 9 Prospect and additional drilling activities, Israel's entitlements could grow or shrink substantially, depending on the findings. For example, it may turn out that the relative share of the Block 9 Prospect on the Israeli side contains more than previously thought, and Israel's demands for compensation will grow accordingly. Such calculations will likely stoke disagreement and tensions between the two sides in the future.

The agreement states that the development of the Block 9 Prospect will be solely for the benefit of Lebanon. This means that Israel will not be entitled to receive gas or petroleum extracted from the Block 9 Prospect for its own use. The agreement commits Israel to not develop its side of the Block 9 Prospect independently, freeing up the operatorship of the project to the Block 9 Operator. Israel has also committed not to object to reasonable and necessary activities, such as navigational maneuvers, that the Block 9 Operator may wish to conduct immediately south of the MBL in pursuit of the Block 9 Operator's exploration and exploitation of the prospect, so long as such activities occur with prior notification by the Block 9 Operator to Israel, and Israel has pledged not to unreasonably impede the development of the prospect.

The agreement contains no reference to the question of whether Lebanon could export surpluses of hydrocarbons to neighboring states and how it might do so. The agreement does not stipulate exactly what hydrocarbons will be produced from the Block 9 Prospect (such as oil, natural gas, condensate, hydrogen, LNG, methanol, ammonia, etc.). These are parameters that will affect the field's profitability and will be determined in agreements with the operator.

## Development of Future Hydrocarbon Prospects across the MBL (other than the Block 9 Prospect)

The third section of the agreement establishes both sides' consent to call on the assistance of the United States once again if disagreements arise between them concerning the development of additional resources along the MBL.

As it stands, there is no concrete information about the existence of any additional hydrocarbon reserves along the new MBL between Israel and Lebanon. During the negotiations, both sides were wary of making tangible concessions, in case new cross-border reserves along the MBL were discovered in the future. Therefore, the agreement does not settle the question of the future development of additional prospects. The agreement states that "each Party shall share data on all currently known, and any later identified, cross-MBL resources with the United States, including expecting the relevant operators that operate on either side of the MBL to share such data with the United States" and will conduct a dialogue with the United States about such issues. If new discoveries are made in the future along the MBL, the sides will present the issue to the United States, which will offer assistance in a manner acceptable to both parties at the time. Moreover, both sides have effectively forgone claims to any resources that might yet be discovered on each other's side of the MBL.

The agreement incorporates a declaration by the United States, committing to "exert its best efforts and endeavors in order to facilitate Lebanon's immediate, swift and continuous petroleum activities".

## The United States' Continuing Role as a Mediator and Facilitator in the Future

The fourth section of the agreement states that if differences arise between the parties concerning the agreement, the parties will turn to the United States to try to reach an agreement. Similarly, the text stipulates that the agreement will come into force once the United States sends a notice that both parties have accepted, in writing, the terms of the agreement as laid out in the annexes. For Israel, it is important that the United States act as the mediator and facilitator in relation to this agreement. There is a concern that Lebanon would otherwise appeal to international institutions to resolve any disputes, which would not necessarily serve Israeli interests.



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## Summary and Future-Looking Conclusions

The 2022 Delimitation Agreement Between Israel and Lebanon is extremely important, in every possible sense. The general elections in Israel, during which the agreement was presented to the public, impeded any serious and in-depth discussion on the matter in Israel. Now, however, we may look ahead and consider how it would be proper to address the challenges that the agreement poses.

Israel must devise a policy and strategy concerning its maritime domain. It must recognize the sea as a national asset and regulate it, taking a broad and long-term perspective. First and foremost, it must complete the legislative process to pass the 2017 Marine Areas Bill through which Israel would, among other things, define in its laws the process for determining its maritime borders. Israel must determine the point on land that will serve as the starting point for its MBL with Lebanon, which will affect its starting position in any future negotiations. Israel must also deposit the economic aspects of the agreement to parliamentary and ministerial oversight and examine whether it is appropriately realizing its rights to the Block 9 Prospect. This is a complex issue that will require professional knowledge, which must be sustained over time.

Israel must also consider the positioning of future offshore infrastructure in its EEZ. The location of the Floating Production Storage and Offloading facility ("FPSO") for the Karish field was used as a pawn by both sides in their attempts to reach an agreement over the MBL.

Israel must formulate a policy for positing future offshore infrastructure in its EEZ after careful consideration of all relevant factors. Israel must make it clear that since it is ultimately responsible for, and will also fund, the defense of Israeli offshore infrastructure in its EEZ, Israel must also decide the location of future offshore infrastructure as well; offshore operators must take this into account when developing their field development plans (or FDPs).

It will not be long before pressure mounts on Israel to assist the development of the Gaza Marine gas field and other prospects located off the coast of the Gaza Strip owing to the deleterious economic situation there.<sup>33</sup> The resolution of the Lebanese maritime matter may serve as inspiration and precedent in any attempt to resolve the maritime conflict around Gaza. Israel should consider its position on the Palestinian Authority's declaration

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<sup>33</sup> Orin Shefler, "UNCLOS, Delimitation of Maritime Boundaries and Offshore Infrastructure as a means for Regional Cooperation and Reconstruction of the Gaza Strip," in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2018), pp. 311–332.

of an EEZ off the coast of Gaza (although Israel has already expressed its official and obligatory opposition on this matter).<sup>34</sup> Likewise, Israel must examine the possibility of future offshore developments near Gaza, even while Hamas maintains controls the Gaza Strip, perhaps with the assistance of Turkey, with which Israel has recently warmed its relations on energy matters.

The Delimitation Agreement between Israel and Lebanon is a hopeful sign and points to the latent possibilities of the maritime domain. The agreement heralds a new era in relations between Israel and Lebanon, even if both sides are trying to lower expectations. But even more importantly, the agreement demonstrates that hostile states can still cooperate in the maritime domain even when on land, they struggle to do so.

One may hope that the agreement with Lebanon will bring economic prosperity and growth to the entire region.

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<sup>34</sup> ["Israel's deposit of its opposition to the Palestinian Authority's move,"](#) January 14, 2020 [Hebrew].

## From Sea to Shining Sea: The Reorientation of Turkish Foreign Policy in 2022

*Omri Eilat*

2022 was a year that redefined Turkey's regional role. In a relatively short time, it was transformed from a regionally destabilizing force in the Eastern Mediterranean to a force for relative stability across the wider region. This shift came after a period in which Turkey went knocking on the doors of the U.S. administration and strenuously courted states in the Middle East with closer relations to the United States, namely Israel, Egypt, and the United Arab Emirates,<sup>1</sup> in order to rehabilitate its relationship with Washington while receiving a reception that can be characterized as somewhere between cautious and chilly. Russia's invasion of Ukraine and the severe crises triggered by the prolongation of the war provided a once-in-a-generation opportunity for Turkey to improve its geopolitical standing. President Recep Tayyip Erdoğan's administration grabbed this opportunity with both hands and took action as the new circumstances required. Whereas Turkey in the summer of 2020 was supposedly the local troublemaker of the Mediterranean region,<sup>2</sup> Turkey in the fall of 2022 was the responsible adult of the Black Sea basin region. Nevertheless, Turkey's reorientation is determinedly not a strategic shift in its approach to its role in the Middle East and beyond, nor has it abandoned its maritime boundary demands.

### Turkey's reorientation and NATO

Russia's invasion of Ukraine dramatically improved Turkey's position in NATO, not least because of its critical strategic position. Even before the Russian invasion of Ukraine, Turkish Foreign Minister, Mevlüt Çavuşoğlu, had announced the closure of the Bosphorus and Dardanelles straits to Russian warships and thus restricted the Russian Navy's activities in the Black Sea. Thus, not only did Turkey bolster its position as a key NATO member, with the second-largest military in the alliance; but it also reinforced the 1936 Montreux Convention, which affirmed the status of the straits and of the Sea of Marmara as international waters and authorized Turkey to close them to warships during times of

<sup>1</sup> "[Turkey, UAE sign investment accords worth billions of dollars](#)", *Reuters*, November 24, 2021; Jonathan Lis, "[Bennett Thanks Turkey's Erdogan for Couple's Release in First Call Since 2013](#)", *Haaretz*, November 18, 2021; Salim Çevik, "[Erdogan's Endgame with Egypt](#)", *The Cairo Review of Global Affairs*, August 6, 2021.

<sup>2</sup> Omri Eilat and Ayal Hayut-man, "The Turkish Maritime Doctrine: Blue Homeland (Mavi Vatan)," in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2020/21* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2021), 187–195.

armed conflict.<sup>3</sup> Not only did the Erdoğan government, therefore, prove its dependability in upholding a convention that predated the United Nations; but it also positioned Turkey as a power that supported the international order, precisely as it was weakening. This came after a period in which Turkey aggressively challenged the U.N. Convention on the Law of the Sea (UNCLOS) in the Eastern Mediterranean.

Another important factor in reinforcing Turkey's NATO membership has been the tightening of the alliance and its increasing relevance in the face of the concrete Russian threat to Europe. This process has led other nations to want to join it. Chief among them is Ukraine, which cannot join NATO because it is embroiled in an armed conflict, but the shifting attitudes of the traditionally cautious Finland and Sweden are no less dramatic. The right of every NATO member state to veto new admissions has automatically made Turkey the kingmaker on the subject of Sweden and Finland's accession to NATO.<sup>4</sup> This situation has given Turkey clear leverage against the Kurdish immigrant lobby in Sweden, which has expressed enthusiasm for Kurdish separatism. Turkey achieved what it wished for when Sweden and Finland extradited 73 individuals considered by Turkey to be terror activists, most of them PKK members.<sup>5</sup> Turkey acted as the United States expected of it when it underscored the risks it was taking by standing up to Russia, and the admission of these new members is only one example.

### The ultimate mediator

Turkey's relations with Russia were extremely complicated even before the war in Ukraine. Both states' engagements in a host of theaters had sometimes brought them into direct confrontations. In Syria, cooperation between them was still possible, but the deviations were dramatic, even if they may be seen as accidents. One especially memorable incident was the downing of Russian military aircraft by Turkish jets. Tensions around Syria reached a boiling point again with the assassination of the Russian ambassador in Turkey, along with the killing of 34 Turkish soldiers by Bashar al-Assad's forces with Russian arms and protection. Unlike in the case of Syria, Russia and Turkey found themselves on opposite sides of the Libyan Civil War from its outbreak, with Turkey supporting the Islamist Government of National Accord and Russia backing Egypt in its support for the forces of General Khalifa Haftar.<sup>6</sup>

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<sup>3</sup> *Al-Jazeera*, "[Turkey warns against passing of warships from its straits](#)", March 1, 2022.

<sup>4</sup> Jill Lawless and Joseph Wilson, "[Turkey lifts its objections to Sweden, Finland joining NATO](#)", *AP News*, June 28, 2022.

<sup>5</sup> Phelan Chatterjee, "[Who are 'terrorists' Turkey wants from Sweden and Finland?](#)", *BBC News*, July 5, 2022.

<sup>6</sup> Remi Daniel, "[Turkish-Russian Relations: A Puzzle That Shakes the Middle East](#)", *Turkeyscope*, 5, no. 3 (2021).

In general, the conflicting interests in Libya and unavoidable collisions in Syria did not detract from Turkey's known tendency to rely on Russian support in cases of dissatisfaction with its cooperation with the United States. The S-400 deal with Russia and Turkey's exclusion from the F-35 project led Turkish-U.S. relations to a dead end and delivered a significant achievement to Russia's efforts to gain a foothold in the Eastern Mediterranean.<sup>7</sup> Moreover, the complexities of geopolitics have not destabilized Turkish-Russian economic cooperation, especially in the energy sector, which both nations have a weighty interest in maintaining. Some 74 percent of Turkey's gas consumption comes from Russia via the Turk Stream and Blue Stream pipelines. Another important project whose significance extends far beyond the Turkish energy market is the establishment of the Akkuyu nuclear energy plant, with almost 100 percent funding from Russia's state energy corporation, Rosatom.<sup>8</sup>

Meanwhile, Turkey has enjoyed extensive relations with Ukraine for thirty years. It recognized its statehood at the end of 1991, mere months after it declared independence. On the eve of the COVID-19 crisis, in 2019, Turkish-Ukrainian bilateral trade stood at over \$4 billion, and the investments and open projects of hundreds of Turkish companies were valued at over \$6 billion. Nevertheless, considering the current situation, the most significant deal that year was the sale to Ukraine of Bayraktar UAVs manufactured by a company owned by Erdoğan's son-in-law. According to the Ukrainian Government, it entered the war in late February 2022 with 20 of these drones; by the end of the summer of 2022, Ukraine was believed to possess at least 50. We know that these drones played a significant role in the sinking of the *Moskva* warship, which led to the relaxation of the naval blockade and the withdrawal of Russian forces from Snake Island. Turkey's aviation knowledge and the successful operational experience of the Bayraktar UAVs from the Azerbaijan-Armenian War of the summer of 2020 have given Ukraine a clear advantage in the field of UAVs against the Iranian-made UAVs acquired by the Russian military, which are nowhere as successful as the Bayraktar.<sup>9</sup>

Turkey's expansive and intricate ties with both sides, taken together with the significant rise in its standing within NATO, have made it a clear third party to this conflict. On the

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<sup>7</sup> Henri J. Barkey, "[Why There's No Easy Solution to the U.S.-Turkey Dispute Over the S-400](#)", *World Politics Review*, December 29, 2020.

<sup>8</sup> Elena Schislyaeva, Irina Evgrafova, Nadezhda Butakova, and Yuri Mishalchenko, "The EU – Russia – Turkey Energy Triangle: Legal and Economic Conditions of Gas Transportation via the TurkStream Pipeline", *Transportation Research Procedia*, 63 (2022): 1984–1990.

<sup>9</sup> Ragip Soylu, "[Ukraine received 50 Turkish Bayraktar TB2 drones since Russian invasion](#)", *The Middle East Eye*, June 22, 2022; H. I. Sutton, "[Incredible Success of Ukraine's Bayraktar TB2: The Ghost of Snake Island](#)", *Naval News*, May 18, 2022.

one hand, it has condemned Russia's indiscriminate assaults on Ukrainian civilians; on the other, it has refrained from joining the United States and European Union's sanctions against Russia. This cautious position has made it the ultimate mediator between the sides. At the start of the war, there was a competition between Turkey and Israel over this status, but Turkey had many more overlapping interests with Russia and Ukraine, so it was much more suitable than Israel. Its biggest success as a mediator is the export corridor for Ukrainian wheat through the Black Sea, escorted by Turkish ships.<sup>10</sup> Taken together, these developments leave no room for doubt: Turkey's primary domain has shifted from the Mediterranean Basin to the Black Sea.

### Europe's energy corridor

The sanctions that the United States and other Western nations imposed on Russia forced some of them at the start to grapple with the question of their dependence on Russian gas supplies, and then with disruptions to this supply. The most striking case was Germany, which is dependent on gas delivered through the Nord Stream 1 and 2 pipelines, with no possibility of finding an alternative supplier at such short notice. Importing liquefied natural gas (LNG) in tankers from the United States was one possible alternative, but far from enough to cover shortages in case the supply of Russian gas was cut off. Indeed, during the war, the deliberate sabotage of the two pipelines left Germany with no good options to procure gas. In contrast with this gloomy picture, Turkey offers Europe its most reliable energy corridor. Much of the gas that passes through Turkey comes from Russian sources, but it is supplemented by gas in pipelines from Azerbaijan, Iran, and Iraq. Turkey's desire to boost its status as Europe's energy corridor has guided its diplomatic efforts, including in the Mediterranean Basin.<sup>11</sup>

In March 2022, during President Isaac Herzog's visit to Turkey, Erdoğan devoted a large part of his speech to cooperation in the energy sector and went down into technical details about possible joint drilling operations.<sup>12</sup> Turkey's efforts to reconcile with Israel and the United Arab Emirates stem not only from a desire to become close again to the United States' most stalwart allies in the Middle East; Turkey itself suffered a serious gas shortage in the winter of 2021–2022, and its gas market suffers from a structural vulnerability given the cessation of the gas supply from Iran every winter.<sup>13</sup> Turkey hopes that purchasing gas from Israel through a pipeline to be laid across the exclusive economic

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<sup>10</sup> *Daily Sabah*, "[Turkey expects Black Sea grain corridor deal in writing this week](#)", July 20, 2022.

<sup>11</sup> Kadri Tastan, "Turkey and European Security", *SWP Comment*, no. 38 (2022): 1–8.

<sup>12</sup> *Reuters*, "[Erdogan tells Israel's Herzog synergy in energy mutually beneficial – Turkish presidency](#)", April 1, 2022.

<sup>13</sup> *Financial Times*, "[Turkish industry hit by power cuts amid gas supply troubles](#)", January 24, 2022.

zones (EEZs) of Israel, Lebanon, and the unrecognized Turkish Republic of Northern Cyprus will address this problem and safeguard its strategic position as Europe's southern energy corridor.

Turkey's opposition to the installation of the EastMed pipeline since 2018 is rooted in its historical conflict with Greece and Cyprus over their EEZs, but also in the fact that it would create an adjacent, rival energy corridor. Israel's rapprochement with the United Arab Emirates, which reached its peak with the Abraham Accords, signed in September 2020, and the agreement to export Emirati petroleum through the Trans-Israel Pipeline were seen as a strategic challenge by Turkey, at minimum, and were understood as a step to undermine Turkey's position. Turkey's relations with the nations of the Eastern Mediterranean have shifted, not least with Israel and Egypt following the change of administrations in the United States at the start of 2021, but Russia's invasion of Ukraine had a more powerful impact on this process, deepening it further.

## The Rapprochement with Israel

Turkey sees Israel as a force that can traditionally open doors to U.S. administrations. Nevertheless, even if Turkey's reconciliation efforts with Israel in 2021 were partly an attempt to improve Ankara's standing with the U.S. administration, since Russia's invasion of Ukraine, Turkey's importance to the United States is clear in its own right. It does not need Israel in order to move more effectively through the hallways of Congress and the White House. The continuation of this trend is consistent with Turkey's renewed attempt to position itself as a Middle Eastern regional power by peaceful means.

The rise of the Bennett-Lapid government in Israel clearly removed an obstacle to Turkish-Israeli rapprochement. Then-Prime Minister Naftali Bennett was not actively involved in these rapprochement efforts and left them to President Herzog, who conducted the first official visit of its kind in a long time in Ankara at the start of March 2022. Still, then-Foreign Minister Yair Lapid advanced this process by visiting Ankara and hosting Mevlüt Çavuşoğlu in Israel in May 2022. As prime minister, Lapid met with Erdoğan at the U.N. General Assembly and completed the process of returning ambassadors to Ankara and Tel Aviv. The phone call between Erdoğan and Netanyahu after the latter's victory in Israel's November 2022 elections strengthens the trend of the full normalization of relations, but it is too early to declare a *fait-accompli*.<sup>14</sup> In any case, nobody currently disputes that Turkey's desire to draw closer to Israel is part of an organized policy and no mere whim.

<sup>14</sup> Lazar Berman, "[In first phone call since 2013, Netanyahu, Erdogan pledge to build 'new era' in ties](#)", *Times of Israel*, November 17, 2022.

This series of diplomatic visits began with Israel's announcement that, as a matter of principle, its rapprochement with Turkey would not come at the expense of its ties with its closest allies, Greece and Cyprus. This found expression in Herzog's visit to Greece before his visit to Turkey.<sup>15</sup> The Turkish government accepted this position, while Israel internalized the Turkish strategy of cooperating around shared interests, whatever their conflicting interests in other arenas. Despite the expulsion of members of Hamas's military wing from Istanbul, Turkey has continued to express great enthusiasm and interest in the Palestinian cause, and it sees Hamas as a legitimate party, and in the case of the AKP, even as a sister party, as a fellow part of the Muslim Brotherhood.

Another development that Turkey was watching the progress toward the signing of a maritime boundary agreement between Israel and Lebanon.<sup>16</sup> Its final ratification removed the last hurdle to start drilling operations in the Karish gas field. At this stage, Israel cannot export gas directly to Europe, doing so instead through liquefaction plants in Egypt. Still, the proliferation of drilling operations and active gas wells on the eastern shoreline of the Mediterranean has raised Turkish hopes for renewed negotiations (the last round failed in 2013) for the construction of a pipeline through Turkish territory, through which Israel and Lebanon will be able to export gas to Turkey itself or to European states through Turkey.<sup>17</sup> Turkey is also continuing to try to find a way to get involved directly in drilling the gas reserves along the Lebanese coast, and it has its eyes on the gas prospects in the Palestinian Authority's EEZ off the coast of the Gaza Strip. Israel, for its part, on the one hand, expects Turkey to halt its assistance to Hamas, and on the other hand, has consistently objected to the Turkish government's involvement in various mediation efforts ever since Erdoğan's first offer to Ehud Olmert to mediate the resolution of the conflict. The new chapter that has opened in Israeli-Turkish relations, short as it may yet be, involves Israel's acceptance of Turkey's relationship with Hamas, alongside Turkey's acceptance of Israel's close relations with Greece.

## Regular tensions: Turkey and Greece

The tensions along the maritime boundary between Turkey and Greece over the past year, during which it appeared on several occasions that the two nations would find themselves on the brink of war, are a variable that is independent of Turkey's relations with the broader international institutions to which they both belong. Despite the strengthening of NATO and the fact that both Turkey and Greece are member states, the conflict over

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<sup>15</sup> Tal Schneider, "[Herzog head to Greece for state visit as Turkey détente brews](#)," *Times of Israel*, 24 February, 2022.

<sup>16</sup> TRT Haber, "[Lübnan'dan İsrail ile deniz sınırı anlaşma taslağına dair açıklama](#)", October 10, 2022.

<sup>17</sup> Reuters, "[Turkey Seeks Israeli Gas, but Politics Are in the Way](#)", *Haaretz*, November 3, 2013.



the maritime boundary between them continues to cause shockwaves. This maritime conflict predates the international organizations and arrangements designed to resolve such boundary disputes. It stems from the success of the European powers, chiefly the British Empire, in wresting control of the shipping lanes in the Mediterranean, Red Sea, and Persian/Arab Gulf from the Ottoman Empire in the nineteenth and twentieth centuries. The loss of Cyprus (to Britain in 1878), Crete (which united with Greece in 1908), and the Dodecanese (to Italy in 1911) in violation of the international guarantees given to the Ottoman Empire has been seen as a historic injustice by successive Turkish governments. It underpins Turkey's inbuilt suspicion of international institutions.<sup>18</sup> Turkey's historical attachment to the Black Sea is similarly linked to the same legacy of protracted Ottoman control of the entire basin, but unlike in the Aegean and Mediterranean, Turkey is a force for stability there, not a revisionist actor with demands of its own.

Even though Turkey has stopped regularly invoking its imperialistic Blue Homeland doctrine for the Eastern Mediterranean and the Aegean Sea, its demands for a wider EEZ and its structural vulnerability resulting from the proximity of islands under Greek sovereignty along its shores remain unchanged. The dispute over Turkey's maritime boundaries has entailed a dispute over air space, as seen last year with the proliferation of violations on both sides and mutual accusations of provocations. While Turkey has worked to improve its relations with the White House, Greece enjoys unwavering support from the United States. This support received pronounced expression with the visit of Greek Prime Minister, Kyriakos Mitsotakis, to Washington in May 2022, where he was received warmly and enthusiastically at Congress, where he delivered a speech, and at the White House, where he met with President Joe Biden. The improvement in Greek-U.S. relations under the Biden Administration adds another layer to Greece's membership of the European Union and its repeated claims that Athens is defending the borders of Europe. Greece frames its position in the European Union this way, and the new waves of refugees since the U.S. military's withdrawal from Afghanistan have kept these efforts intact in the face of Turkey's leverage against the institutions of the European Union as the main point of transit for refugees from Muslim states in Asia. Last summer, Greece started work to extend the border fence between it and Turkey from 40km (25 miles) to 120km (75 miles).<sup>19</sup>

The fact that both countries have entered an election year has heightened the combative rhetoric and both sides, playing an important role in both nations' local politics since

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<sup>18</sup> Mustafa Aksakal, *The Ottoman Road to War in 1914: The Ottoman Empire and the First World War* (New York: Cambridge University Press, 2008): 4–7.

<sup>19</sup> Tasos Kokkinidis, "[Greece to Extend Fence Along the Entire Length of the Border with Turkey](#)", *Greek Reporter*, August 23, 2022.

backing or calming down would be interpreted by public opinion as weakness. This tension has increased concerns in the European Union of a possible Turkish invasion of Greece. Nevertheless, Turkey's threats to conquer Greece in a matter of days have come in tandem with an understanding that has trickled down in all states in the region, which are all looking at the Russian military's entanglement in Ukraine, that any country's invasion of its neighbor would lead to disastrous consequences for the invading power. Turkey is not as isolated nowadays as it was in late 2020, but precisely for this reason, it has much more to risk. Moreover, in addition to the disagreements and tensions, there exists a longstanding framework for dialogue between the two states, to which we must add infrastructure for dialogue between Erdoğan and Mitsotakis. In early October 2022, both leaders declared their openness to dialogue and conversation to reduce any tensions that might flare up in the near future.<sup>20</sup>

## Conclusion

Turkey's reorientation represents a natural shift that stems from its strategic thinking and critical position in the war in Ukraine, which the whole world has been watching since the start of 2022. Its activities over the past year have been based on both damage control and seizing opportunities in the context of the war. It would be a mistake to see Turkey's steps as heralding an irreversible long-term strategic shift. It has not taken a one-sided position against Russia, nor has it cut itself off from the United States or quit NATO over the crisis period of the past decade. Moreover, the improvement in its foreign relations has not at all alleviated the profound crisis of the Turkish economy, which remains a burning issue for its citizens and the most impactful for the country's fate in the coming years. The success of the Turkish arms exports market, even with the "seal of quality" lent by their operational experience, does not come close to covering the gaping hole in the Turkish economy, reflected in galloping inflation at the highest rates in the world (having risen from 36.1 percent at the start of 2022 to a record 85.5 percent in October of the same year) owing to the political management of the nation's economy.

Nevertheless, the change in Turkey's role is not a matter of whim, and it may be relied on to be stable in the near and medium terms. Bigger initiatives to guarantee the region's long-term stability will require all sides to compromise on historic issues, such as with a resolution of the Israeli-Palestinian conflict or a resolution of the Cyprus issue and the Turkish-Greek maritime boundary. The eventual end of the war between Russia and Ukraine may incentivize Turkey to increase its demands, in recognition of its contribution

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<sup>20</sup> Okan Müderrisoğlu, "[Pursuing dialogue does not equate to weakness: Türkiye tells Greece](#)", *Daily Sabah*, October 20, 2022; *VOANews*, "[Greece Says It's Open to Talks with Turkey Once Provocations End](#)", October 2, 2022.

to minimizing the damages of the war, mediating between the warring parties, and maybe even ending the conflict altogether. Turkey's heightened attention to the Black Sea Basin is temporary and will not moderate its demands in the Mediterranean and Aegean. It would be prudent to take advantage of the present crisis that all the relevant parties find themselves in now to reach understandings that will prevent the conflict from flaring up in the future or that will at least tone it down.

## Türkiye–Israel Collaboration and Energy Diplomacy\*

*Oğuzhan Akyener and Abdullah Altun*

The international system is undergoing a major transformation, mainly related to the changing structure of global value chains (GVCs). A GVC basically refers to the full range of globally dispersed activities for bringing a product from its conception to beyond final consumption.<sup>1</sup> Since the mid-1980s, the world has experienced what could be called the second great unbundling (or GVC revolution), which means that the separation of production stages across countries has become more attractive.<sup>2</sup> Thus, the GVCs dominate the global economy. Multinational-enterprise-coordinated GVCs account for more than 70 percent of global trade.<sup>3</sup> Since the 2007–8 food crisis and the 2008 global economic crisis, the expansion of GVCs has been disrupted. In particular, the self-sufficiency concerns after the 2007–8 food crisis and protectionist sentiments after the 2008 global economic crisis continue to increase because of the trade wars (2018), COVID-19 (2020–21), and the Russia-Ukraine war (2022).<sup>4</sup> The transformation of the existing value chains and the changing weight of the current production and consumption hubs are just some of the main signs. In this transition period, new collaborations, such as the Regional Comprehensive Economic Partnership (RCEP), Union State (a supranational union consisting of Russia and Belarus), and AUKUS (trilateral cooperation between Australia, the United Kingdom, and the United States), associated with new conflicts are emerging. The East, which is getting stronger and consuming more, unsettles the existing system dominated by the West. The war between Russia and Ukraine and the unjust annexation of Ukrainian lands by Russia cause much more grave concerns in this context.

\* Editor's note: We welcome the inclusion of the article in this year's Maritime Strategic Evaluation of the Maritime Policy and Strategy Research Center. However, we emphasize that its content and terminology reflect only TESPAM's views.

<sup>1</sup> G. Gereffi and K. Fernandez-Stark, [Global Value Chain Analysis: A Primer](#), 2nd ed. Center on Globalization, Governance & Competitiveness (Durham, NC: Duke University, 2016).

<sup>2</sup> R. Baldwin, *Globalization: The Great Unbundling(s)*, prepared for the Finnish Prime Minister's Office as a Part of Finland's EU Presidency Programme, Economic Council of Finland, 2006; R. Baldwin, *The Great Convergence: Information Technology and the New Globalization* (Cambridge, MA: Belknap Press of Harvard University Press, 2016).

<sup>3</sup> OECD, WTO and UNCTAD, [Implications of Global Value Chains for Trade, Investment, Development and Jobs](#), prepared for the G-20 Leaders Summit, St. Petersburg, Russian Federation, 2013.

<sup>4</sup> FAO, [The State of Agriculture Commodity Markets 2015–16. Trade and Food Security: Achieving a Better Balance between National Priorities and the Collective Good](#) (Rome, 2015); M. Datt, B. Hoekman, and M. Malouche, *Taking Stock of Trade Protectionism since 2008*. Economic Premise, No. 72 (Washington, DC: World Bank, 2011).

In this painful transition period, climate concerns, migration, and the energy crises negatively affect large energy import-dependent economies, such as the EU. At this point, multilateralism becomes much more important than ever to solve complex problems. In terms of geostrategic location, Türkiye and Israel are at the very center of the relevant global transition process. For this reason, cooperation between Türkiye and Israel will make significant contributions toward the stability of the region, sustainability of the value chains, resolution of the regional conflicts, contribution to the energy supply security of the allies, combating climate change, and minimizing the negative effects of migration.

In this article, after indicating some significant points about the contemporary transformation of the global economy, the increasing importance of energy diplomacy, Türkiye's growing role in this context, and the multifaceted benefits of Türkiye–Israel cooperation will be discussed.

## Future of Global Crisis within the Context of Energy and Climate Change

The world is in an era of a great transformation. Although some scholars claim that there is considerable renunciation of globalization, the possibility of a new wave of globalization also seems very realistic. Indeed, partial de-globalization can be observed within the context of an ongoing globalization algorithm, but there are obvious signs of a new wave of globalization with a new trajectory. Since the 1990s, developed countries have outsourced various phases of their domestic production by using their outward foreign direct investments (FDIs). Abovementioned GVCs are the results of these outsourcings. When the FDIs of developed nations arrive in destination countries, they benefit from the lower local wages, import intermediate products from various countries to produce there and export all over the world from these destination countries. As a result of this algorithm, even foreign invested enterprises (FIEs) accounted for approximately half of the imports and exports of China, although they are responsible for just 17 percent of industrial production of China.<sup>5</sup> Not restricted to this example, many developing countries host considerable amounts of FDIs from developed nations and produce for them within the context of this algorithm. However, this algorithm is threatened by the abovementioned self-sufficiency concerns and protectionist sentiments. Most probably they will be the main driver of the transformations in the GVCs. There is no doubt that some of the most important issues in the midst of this great transformation are the contemporary energy

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<sup>5</sup> These ratios are the authors' own elaborations using data from the [National Bureau of Statistics of China](#) (NBSC), *China Statistical Yearbooks 2000*; NBSC, *China Statistical Yearbooks 2006*; NBSC, *China Statistical Yearbooks 2010*; NBSC, *China Statistical Yearbooks 2011*; NBSC, *China Statistical Yearbooks 2016*.

crisis and climate change. To clarify these issues further, we should consider their short-, medium-, and long-term dimensions separately.

Winter is coming! The 2022–23 winter will be very challenging for Europe. As the primary energy provider for Europe, Russia cut off gas exports to Europe. According to alternative scenarios, it does not seem possible for Europe to utilize other resources in the short run to satisfy their energy needs. Thus, such a difficult situation will have serious consequences for governments, enterprises, and households. Associated recession risks and increasing political instability are just some of these consequences. Contrary to emissions targets, Europe has started to operate its conventional energy facilities again. Europe's efforts toward reducing emissions seem to have been badly damaged as a result of the Russia-Ukraine war. Whether these outcomes can be results of the struggle between producers of conventional energy resources and alternative or renewable energy producers is an important question nowadays.

Here one important point should be further clarified: Is this short run energy crisis due to lack of energy? Of course, there are hesitations about the sufficiency of the world energy resources in the long run, but the current crisis is not related to this. The increasing energy prices that threaten the sustainability of contemporary production hubs and trade networks are very consistent with the power struggle in GVCs.

A series of events starting with the 2008 global economic crisis increase the tendency toward self-sufficiency concerns and protectionist sentiments among nations. The 2018 United States–China trade wars, the COVID-19 pandemic, and the Russia–Ukraine war all have very similar effects in terms of self-sufficiency and protectionism. Although this is a threat for available value chains, whether this situation may result in construction of new value chains is another question of interest.

The bipolar international system after World War II dominated global relations until the dissolution of the Soviet Union. Interestingly, the current environment after the Russia–Ukraine war bears traces of the bipolar world order. From a different point of view, the rise of China since the 1990s, driven mostly by Western FDIs, cannot be ignored. Although China once was supported mainly by the United States until it reached a certain level of production, the United States in recent years mainly tries to restrict China. Thus, the world goes toward a new world order, but whether this new order will be a bipolar or a multipolar order is not fully understood yet.

Technological leadership cannot be separated from all of the abovementioned topics of interest. China shows real progress in terms of intellectual properties and scientific studies. According to the latest statistics, China is the leader in terms of patent applications

(see Table 1) and a leader in the production of scientific documents (see Table 2). We will probably witness many different outcomes of changing technological leadership in the medium- and long-term.

Table 1: Patent Applications

Patent Applications	2007	2018	2019	2020
World Total	1,850,000	3,325,400	3,224,200	3,276,700
China	245,161	1,542,002	1,400,661	1,497,159
United States	456,154	597,141	621,453	597,172
Japan	396,291	313,567	307,969	288,472

Source: WIPO (2009, 2019, 2020, 2021)<sup>6</sup>

Table 2: The Number of Citable Scientific Documents and Ranks

1996			2020		
Rank	Country	Citable Documents	Rank	Country	Citable Documents
1	United States	350,258	1	China	744,042
2	United Kingdom	86,373	2	United States	624,554
3	Japan	89,430	3	United Kingdom	198,500
4	Germany	75,878	4	India	191,590
5	France	55,205	5	Germany	174,524
6	Canada	42,607	6	Italy	127,502
7	Italy	39,127	7	Japan	127,408
8	Russian Federation	32,243	8	France	112,838
9	China	30,741	9	Canada	110,247
10	Australia	24,754	10	Russian Federation	119,195

Source: SCImago<sup>7</sup>

In addition to the supply chain disruptions due to increasing freight costs and long delivery times driven by COVID-19, the recent Russia–Ukraine war makes the situation worse, especially in terms of energy and food value chains. Moreover, regarding the other conflicts such as the United States–China conflict over Taiwan, there may be more possible threats for the security of long GVCs.

The intense technological change especially in terms of the increasing role of robots, threatens employment in manufacturing industries. There is evidence of the negative impact of robots or automation on the employment of both developed and developing

<sup>6</sup> [World Intellectual Property Organization](#) (WIPO), *World Intellectual Property Indicators 2009*; WIPO, *World Intellectual Property Indicators 2019*; WIPO, *World Intellectual Property Indicators 2020*; WIPO, *World Intellectual Property Indicators 2021*.

<sup>7</sup> SCImago, "[SCImago Journal & Country Rank](#)", *SJR*, April 2022.

nations.<sup>8</sup> Although countries are aware of the issue up to a point, it is not possible to considerably control the ongoing transformation. Factories can successfully produce the same amount of goods with much lower levels of labor compared to ten years ago due to increasing technological capacities of capital goods. There will be possible challenges driven by the differences in the priorities of firms in terms of profit seeking and the efforts of governments to avoid unemployment. Artificial intelligence, 5G, machine learning, big data, Internet of Things, and other new developments have potential to cause many economic and social changes in the long run.

In the long run, a trilemma awaits us: the sufficiency of world energy resources, climate change and the energy hungry-countries such as China and India. More energy consumption means the earlier extinction of energy resources. The further progress of societies requires more energy but brings more emissions. The increasing climate change deteriorates agricultural lands and increases immigration. Sustaining food security becomes much more difficult. Very big movements of human population can be only dealt with by careful planning and efforts by the majority of nations.

The increasing self-sufficiency and protectionism, on the one hand, and increasing needs for multilateral cooperation, on the other, may pose a further challenge for the international community. Nations must first meet their energy needs in order to ensure their sustainability. In this transition and energy crisis period, energy diplomacy is more important than ever. In the next section, we will elaborate on some issues in this context.

## Increasing Importance of Energy Diplomacy through the Energy Crisis Era

Energy is now undoubtedly more important for the world than ever before. While the global energy demand is increasing rapidly, many targets are set for energy transition in order to reduce carbon emissions. Energy supply and prices directly affect the growth targets of countries. While the global economy and technological superiority are slowly shifting from the West to the East, the global tension evolving in the axis of the United States–China conflict reveals a globalization model in which energy is put at the center. Balances shaken by extraordinary situations such as the pandemic turn into the launchpad of a global economic model focused on green transition.

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<sup>8</sup> A. D. Kugler, M. Kugler, L. Ripani, and R. Rodrigo, [U.S. Robots and Their Impacts in the Tropics: Evidence from Colombian Labor Markets](#), *National Bureau of Economic Research Working Paper Series No: 28034*, 2020; Francesco Carbonero, Ekkehard Ernst, and Enzo Weber, [Robots Worldwide: The Impact of Automation on Employment and Trade](#), *International Labor Organization (ILO), Research Department Working Paper No: 36*, October 2018.



Of course, together with all these developments, the contraction in the hydrocarbon sector and the lack of investment reveal that there are inadequacies in meeting the demand caused by the economic growth following the pandemic. Many states that dream of an early green transition are waking up from their rosy dreams into an icy energy crisis. In this process, the international organizations that recommend not taking the discovered hydrocarbon resources into production bury their heads in the sand in the face of these events.<sup>9</sup>

While this is happening, Russia unexpectedly and irrationally invaded Ukraine in February 2022, which deepened the energy crisis, and the international system is heading toward an inextricable crisis. GVCs, logistics networks, financial cycles, and international trade are facing a major bottleneck. With each new statement and sanctions, Russia's relations with the United States and the EU are getting more strained, causing the energy flow to be more difficult, and the prices are now causing many energy-importing countries to reach a deadlock.

While many countries are crushed under the worry of recession with rising energy prices, production is shifting toward countries where energy is cheap, especially in sectors with high energy intensity. The process, which started with the coal crisis in the Asian markets in September 2021,<sup>10</sup> affects the natural gas markets, and with the tense international system following the Russia-Ukraine war, natural gas and electricity prices have reached unmanageable levels, especially in the European markets.<sup>11</sup>

The price scales, which test tens of times what they should be in the spot markets, seriously affect the newer members of the European Union due to their relative financial weakness compared to earlier members. Energy has special significance for the unity of the EU, since the current energy crisis may threaten the EU countries in terms of social security and economic contraction. While energy became such a strategic issue for the EU, the goal of achieving a market free of Russian gas (or at least reducing dependence on Russian gas) has shifted to a more concrete plan. In fact, the history of dependence on Russian natural gas for EU countries started long before the EU was established. Natural gas, which is a much more practical and cleaner energy type (compared to coal), has

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<sup>9</sup> IEA, [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), *International Energy Agency*, May 2021.

<sup>10</sup> M. Meidan, [China and the Energy Crisis: Still on Track for 30–60, Commentary](#), *Italian Institute for International Political Studies*, ISPI (*Italian Institute for International Political Studies*), January 5, 2022.

<sup>11</sup> UN, [Global Impact of War in Ukraine: Energy Crisis](#), United Nations Global Crisis Response Group on Food, Energy and Finance, Brief No: 3, August 2022.

been imported from Russia by many EU countries for many years, without hindering industrialization and growth targets.

On the other hand, mostly since the Cold War period, European countries have been trying to create markets that are less reliant on Russian gas. However, this situation has never been easy to accomplish. Because Russian gas has often been the cheapest, easiest to access, and safest regarding the supply route (generally sustainable). Due to this, an effective policy cannot be carried out in this context. Moreover, we have to note that the nature of the gas market, which requires giant investments and climate-related policies, also affects decisions in this regard.

Therefore, the EU was usually following a confused policy, where it cannot completely agree on accepting or denying additional Russian gas imports. However, this situation seems to have ended with the Russia–Ukraine war.<sup>12</sup> The Russia–Ukraine war was indeed a painful turning point that demolished the diplomatic bridges between EU countries and Russia. In fact, even though they had harsh rhetoric against Russia (as a matter of policy), the EU leaders knew that it was not possible to eliminate Russian gas from their markets in a short time. However, this war has broken all the ongoing dynamics.<sup>13</sup> Worsening sanctions, price cap (for Russian oil or gas) declarations, and planned sabotages to the Nord Stream 1 and 2 pipelines have greatly reduced the possibility of normalization of relations. For the winter of 2022–23, it can be estimated that, despite EU wishes, it will not be able to import additional Russian gas from the Nord Stream routes.

According to the long-term projections of the Turkish Energy Strategy and Research Center,<sup>14</sup> it is obvious that the resources that can be procured from countries such as the United States, Norway, Qatar, Australia, Nigeria, Algeria, Libya, and Azerbaijan (as long as the technical capacities allow) will not be a solution for the EU. In addition, it can be estimated that the related possible resources cannot be considered a long-term solution in the price-cost-reserves triangle.

So, what can the EU do? It has suspended its green transformation goals, has condoned coal plants, has cut down trees for heating purposes, and has reintroduced nuclear and natural gas into the clean energy class. At this point, establishing an effective energy diplomacy and long-term macro policies are perhaps the most feasible solutions. A new

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<sup>12</sup> Oğuzhan Akyener, *Black Sea 2022 – Energy Crisis: The Only Realistic Option for a Russian Gas-Free EU Turkiye Route* (Ankara, 2022).

<sup>13</sup> Oğuzhan Akyener, *Black Sea 2022 – Energy Crisis: Worsening Energy Crisis in EU* (Ankara, 2022).

<sup>14</sup> TESPAM, *World Energy Outlook 2100*, Turkish Energy Strategy and Policy Research Center (Ankara, 2020).

integrated route through Türkiye may be a long-term chance for the EU to reach a market free from Russian gas.

## Türkiye's Strengthening Role for Being a Transit Country

Türkiye has been developing strategies to become an energy hub (specifically, a gas transit center) since the Nabucco pipeline project studies.<sup>15</sup> In this context, there is no doubt that the possibility of connecting Türkiye's eastern and southern neighbors (which are rich in energy resources) with its western neighbors is emphasized. Undoubtedly, many technical, economic, political, and financial conditions must be realized simultaneously in order for these plans to come to life. From this perspective, the current energy crisis and the EU's more coherent attempts to reach a market structure free of Russian gas can be an important advantage for Türkiye to be an energy transit hub. In addition to this, such a route and solution model can be the most realistic option for the EU's energy security.

At this point, as a solution model, TESPAM's long-term projections were used. TESPAM (Türkiye Enerji Stratejileri ve Politikaları Araştırma Merkezi) founded a GIS-based (geographic information system) dynamic energy flow model in 2020. This model is currently available only for TESPAM's internal studies and analysis. Within this concept, all proved and declared reserves, economic, social, political properties of each country, and relevant markets are combined within a numerical and geographical approach. Through this model, TESPAM tries to estimate and project long-term energy demands, supply potentials, costs, tariffs, prices, and market conditions within the neighboring geography of Türkiye. In this regard, Iraq, East Med (Eastern Mediterranean), and Turkic countries' gas exports were modeled to be transported to Türkiye and the EU. The results show that this model can only be achieved in the long term, has a huge economic and political cost, and the possible gas transit via this route may not be as cheap as Russian gas (by evaluating the unit production and transportation costs). However, this seems the only realistic, sustainable, and applicable option for an EU that is not dependent on Russian gas (within the current dynamics).<sup>16</sup> In this context, the EU's long-term gas demand and import scenarios (in 2050) can be observed in Figure 1:

- Romania will need an import volume of 6-bcma (billion cubic meter/year).
- Türkiye will need 80-bcma.
- Bulgaria will need 5-bcma.

<sup>15</sup> T. Umucu, M. Altunisik, and M. V. Kok, "Turkey as a Major Gas Transit Hub Country", *Energy Sources Part A*, 34 (2012): 377–384.

<sup>16</sup> TESPAM, *World Energy Outlook 2100*.

- Italy will need 90-bcma.
- The balloons on the map show the demand of the other European countries.
- Through the possible transit routes (pipeline infrastructure) with some additional investments, gas markets in Baumgarten, East Austria, or Italy can be used to supply some Western and Central Europe countries such as Germany, France, Belgium, the Netherlands, Poland, and the Czech Republic. Through this route an additional 40-bcma can be available (by evaluating the limitations through the technical constraints).<sup>17</sup>

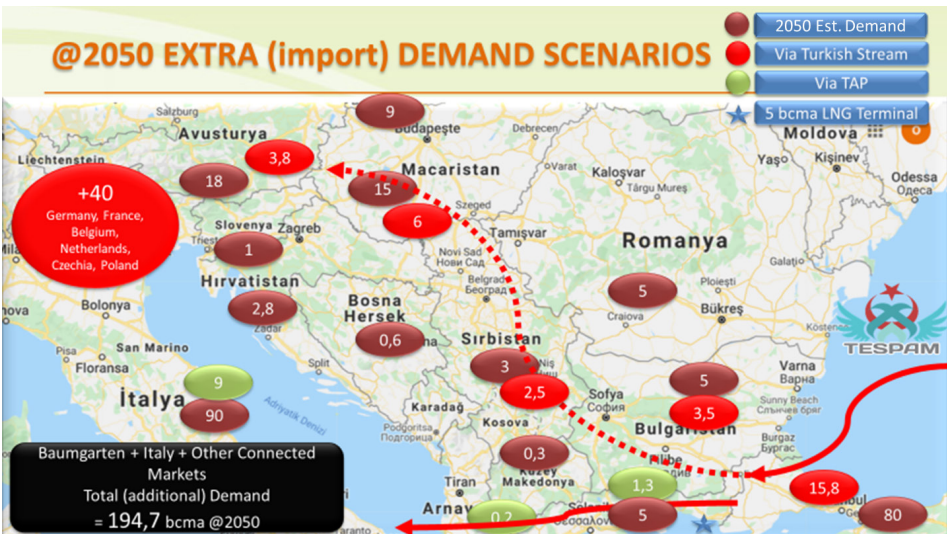


Figure 1: 2050 Gas Demand Projections in Some EU Markets<sup>18</sup>

As can be observed, Austria, Italy and other connected markets will be fed through a possible Turkish route. And the total reachable demand will be around 194.7-bcma in 2050 (without Türkiye).<sup>19</sup> As to export potentials, Figure 2 shows the possible volumes of additional exports of due countries or regions in 2050.

This huge supply potential can be achieved only if the security concerns and the conflicts are solved and an investment environment is sustained. Moreover, this volume can be a real long-term solution for an EU free of Russian gas. If the EU will not make the effort to

<sup>17</sup> Akyener, *Black Sea 2022 – Energy Crisis: The Only Realistic Option for a Russian Gas-Free EU Turkish Route*.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

obtain this gas, we are sure that China is waiting (and making the investment) for all of the gas resources from this region (Turkic countries).<sup>20</sup>

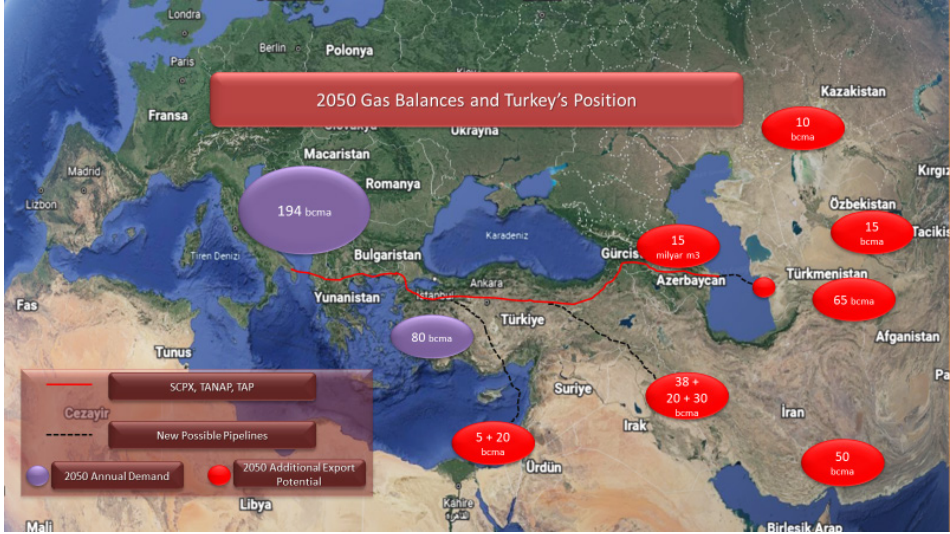


Figure 2: 2050 Gas Balances and Türkiye's Position<sup>21</sup>

## East Med Gas Potential

Undoubtedly East Med has a very unique and strategic role in this model. That is, although export potential is not as high as the eastern regions, development capabilities and transportation costs make East Med preferred. On the other hand, existing political conflicts in the region worsen the situation. According to TESPAM's long-term projections, Israel and the Southern Side of Cyprus Island (SSCI) may have around 25-bcma gas export potential in 2050 (by accepting the limits of the current discoveries).<sup>22</sup>

Note that there is not enough evidence and proven data regarding ENI's latest discovery in the SSCI, and declarations about the Cronos-1 were not taken into consideration.<sup>23</sup> In this regard, it can be analyzed that first, Egypt, being in a position to have the ability to export its gas from the existing LNG (liquefied natural gas) infrastructure, is out of the equation in all political discourse. Second, Israel has a roughly 5-bcma additional export

<sup>20</sup> Ibid.

<sup>21</sup> Ibid.

<sup>22</sup> Oğuzhan Akyener, "Future of Israel Gas Export up to 2050 & Türkiye", *Energy Policy Türkiye*, 2, no. 2 (2016): 15.

<sup>23</sup> Press Release, "Eni Makes a Significant Gas Discovery Offshore Cyprus", *eni.com*, August 22, 2022.

potential by analyzing the long-term sales possibilities. However, again to make such exports, Israel needs to find a reliable and economically feasible market. In addition to this, Israel also has possible new structures (interpreted in the seismic studies) waiting to be invested and tested, which can be accepted as new reserves.<sup>24</sup> This means, again, for Israel to find investors for these new projects, the country needs a possible export route.

There is an important volume of export potential in SSCI (around 18-bcma plateau rate). However, due to the existing conflicts, there will not be any real investments for the further development of these projects. Israel's additional export potential and the SSCI discoveries can be exported together, which means the total volume to discuss will be around a peak of 25-bcma. This is a good volume in comparison to the gas supply security concerns of the EU. This volume politically and economically can be transported to the EU through a route in Türkiye. Türkiye is the biggest, as well as a reliable, sustainable, and commercial gas market in the region (which also may be a more profitable option for the gas suppliers in the East Med). There are huge conflicts in the region, and the best solution can be achieved through Israel's and Türkiye's integrated approaches.

The increasing cooperation between Türkiye and Israel may lead to the resolution of many regional conflicts from the Cyprus conflict to the Syrian Civil War and other regional conflicts. Energy and water problems on the whole island of Cyprus may be resolved with Türkiye's help. The current political climate can be used as leverage to solve all these blocked issues in the region, and gas trade opportunities can be used as a leverage point for Western countries.<sup>25</sup>

## Importance of Türkiye–Israel Collaboration

The current situation clearly reveals the fact that energy can be used as a tool for resolving regional conflicts. Moreover, the current situation also shows that thanks to the ability of Türkiye and Israel to act together in this context, they can find many opportunities and support for the resolution of the relevant regional conflicts. In this context, it has become more possible to create a basis for the attention of the international public and the related problems to be resolved more quickly through fair and pragmatic means.

While the world is going through a great crisis and chaos and while the EU is experiencing such difficulties for the first time, further tensions in the Eastern Mediterranean will not benefit anyone. Energy-oriented steps by Türkiye and Israel will not only benefit the

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<sup>24</sup> Israel's Ministry of Energy, [Gas Fields & Exploration Licenses Offshore Israel](#), June 2020.

<sup>25</sup> Oğuzhan Akyener and Abdullah Altun, [Israel Gas Export Potential, Türkiye and Regional Dynamics](#), *Tespam*, October 5, 2022.

interests of the two countries but also contribute to the development of the possible resources of Lebanon and Syria in the long run. On the other hand, thanks to the abovementioned possible energy corridor (between Israel and Türkiye), the resources located in the south of Cyprus could also be brought into the economy and used for the welfare of the island's rights as well as all relevant markets.

It is no wonder that all global parties in the current situation cannot formally accept the existence of two nations and two states on the island of Cyprus. However, the synergy to be obtained from the cooperation and mutual win-win environment (after a possible energy corridor) can be used to change these kinds of existing conflicts. Otherwise, conflicts and further tensions in the region will continue to harm the interests of Israel, Türkiye, the EU, and the United States. Strategizing against Türkiye (a NATO member!), with harsh rhetoric and hypocritical attitudes, would mean increasing the dominance of countries such as Iran and China (which the United States and other Western allies perceive as threats) in the region. That is why it would be appropriate to follow more sincere policies in understanding these issues.

While energy has become such an important issue in this process, it would be beneficial to initiate an energy-centered cooperation process, even if the current problems are suspended, and to review the solution models later, taking into account the gains achieved in this context. For this reason, Türkiye–Israel cooperation and an energy diplomacy model that can be at the center in this context are very important for ensuring regional peace and for the long-term solution of conflicts.





## **Section 4: Energy in the Eastern Mediterranean**

The two articles in this section discuss energy. One discusses the potential for energy extraction from the sea in a “net zero” economy. The more Israel diversifies its sources of energy, the greater the potential for the production and generation of clean energy from the sea. Demand for hydrogen and liquified natural gas as energy sources derived from the sea will only increase, and it is important to be prepared accordingly. The second article discusses Egypt’s exclusive economic zone in the Mediterranean and provides an overview of the abundance of gas in these waters and the need for Egypt to defend these assets by expanding its navy, on the one hand, and signing maritime boundary agreements on the other.



## Producing Energy at Sea in a Net-Zero Economy

*Orin Shefler*

This article places a spotlight on future needs and methods for producing energy at sea for Israel and provides a brief overview of some new technologies and processes that will unlock this potential. The premise is that the State of Israel is now a producer and exporter of natural gas and has sufficient natural gas reserves to sustain itself and its neighbors for years to come. It is presumed that future developments of offshore natural gas fields will give rise to new opportunities in a "net-zero" economy. To the extent that Israel is able to diversify its energy portfolio, the potential for producing cleaner energy from the sea will rise.

### New Supply and Demand Value Chains

To understand where Israel is headed with respect to producing energy from the sea, one must first envisage future energy supply and demand scenarios. Also, it is imperative to set goals for rolling out new technologies in order to achieve Israel's net-zero targets. Any game-changing plan to decarbonize the Israeli economy must first account for lowering the existing carbon footprint, some of which is attributed to traditional methods of producing energy at sea (such as during the production of natural gas, oil, condensate or LNG [liquefied natural gas]), and going forward, finding ways to eliminate, mitigate, or capture the carbon emissions attributed to traditional energy production. Current assumptions foresee that a full transition to a net-zero economy (i.e., the amount of time that it will take to transition from modern-day reliance on traditional energy sources until achieving Israel's net-zero goals) may last between ten to thirty-five years from the present day,<sup>1</sup> although there are those who would prefer to see this interim period shortened significantly.

During the interim period, it will be the responsibility of the Government of Israel to ensure a steady, uninterrupted supply of energy for Israel that is capable of catering to local and regional energy needs, but also ensuring (a) reasonable energy prices, (b) abundance, reliability, and maintainability of energy for the nation, and (c) keeping to a minimum unavoidable environmental impact. That being said, the length of the interim period will also depend on the pace that scalable and commercial "net-zero" energy

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<sup>1</sup> See Elai Rettig, "[Solar Hopes and Grounded Reality: Should and Could Israel Meet Its 2030 Renewable Energy Transition Target](#)", in *Maritime Strategic Evaluation for Israel 2021/22*, ed. Shaul Chorev and Ziv Rubinovitz (Haifa: Maritime Policy and Strategy Research Center, 2022), 244–250.

production technologies (including storage and transmission infrastructure) can mature in Israel and be successfully deployed.

Also, the main factors to shortening the interim period will be the ability to raise capital for this purpose (a price tag that could be astronomical) and to obtain the necessary Government approvals for new energy projects (including the time needed to plan, fund, and build new infrastructure).<sup>2</sup> At the international level, experts now believe that "annual investments in energy supply and production are expected to double by 2035 to reach \$1.5 trillion to \$1.6 trillion". Furthermore, the majority of energy production growth is expected to come from "decarbonization technologies and power which will exceed [present day] total energy investments by the year 2050".<sup>3</sup>

### Diversifying the Israeli Energy Portfolio

To get the ball rolling toward "net-zero", the Government will need to redefine how Israel produces and consumes energy. Just to be clear—when the term "energy" is used in this article in the context of the sea, it has a two-prong definition that includes (a) production, storage, transmission, or consumption of natural resources used for energy production (such as oil, gas, and their derivatives), and (b) generating electricity from the sea by harnessing nature's elements through technological means such as solar, offshore wind, tidal and wave turbines, and transmitting it directly to consumers.

At present, Israel is still very much dependent on traditional hydrocarbon energy production, which is either produced via concessionaires at sea or otherwise imported from sellers through established sea routes and international supply chains. Unfortunately, traditional hydrocarbon energy production has a massive carbon footprint that will not be sustainable for Israel in the long run, unless the carbon footprint can be mitigated.

So, what does this strategic transformation to "net-zero" mean for Israel in the short term and in the long term when it comes to producing energy from the sea? In the short term, it means that Israel will need to diversify its energy portfolio by blending traditional and renewable energy sources. During the interim period, the name of the game will no longer be to just produce oil and gas from the sea, but rather to begin to produce and consume new forms of energy from the sea that may include traditional hydrocarbon products as

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<sup>2</sup> McKinsey & Co., [Global Energy Perspective 2022: Executive Summary](#), April 2022.

<sup>3</sup> Ibid.

well as other forms of energy such as hydrogen (H<sub>2</sub>, Blue<sup>4</sup> or Green<sup>5</sup>), liquefied natural gas (LNG), compressed natural gas (CNG), ammonia, methanol, and more. And also noting that the sea holds vast potential for producing additional means of energy such as solar power, wind power, tidal energy, wave energy, geothermal energy, and other viable sources (collectively, Alternative Sources).

In the long term, and once Israel's energy portfolio has been diversified to include Alternative Sources, Israel will be able to phase out its reliance on traditional hydrocarbon energy sources and divert surplus quantities to other regions that are behind on their energy transition or still reliant on traditional energy sources.

Each of the Alternative Sources have unique characteristics and may be suitable for different segments of Israel's new "net-zero" economy. The common denominator between all the Alternative Sources is that they must each be made safely available as commodities or consumables to the general public at a reasonable price with minimal environmental impact.

## Expected Increase in the Demand for Hydrogen and LNG in a Net-Zero Economy

In practice, there must be a very clear understanding of what future energy demand scenarios will look like for Israel, and once that understanding is crafted, the Government will be better positioned to initiate new offshore projects, and provide potential investors with the comfort that they need to take final investment decisions (FIDs) and invest the billions of dollars necessary for new offshore projects at sea.

For example, focusing on the vehicle and transportation segment of the new Israeli "net-zero" economy: Will cars of the future be purely electric? Or maybe they will run on hydrogen fuel cells (fuel cell electric vehicles; FCEVs)? Or perhaps car manufacturers will offer a mix between various forms of energy? Clearly, the preferred fuel choice for the

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<sup>4</sup> "Blue hydrogen is when natural gas is split into hydrogen and CO<sub>2</sub> either by Steam Methane Reforming (SMR) or Auto Thermal Reforming (ATR), but the CO<sub>2</sub> is captured and then stored. As the greenhouse gasses are captured, this mitigates the environmental impacts on the planet. The 'capturing' is done through a process called Carbon Capture Usage and Storage (CCUS)". Alex Haynes, "[The Difference between Green Hydrogen and Blue Hydrogen](#)", *Petrofac*, Retrieved December 2022.

<sup>5</sup> "Green hydrogen is hydrogen produced by splitting water by electrolysis. This produces only hydrogen and oxygen ... to achieve the electrolysis electricity (power) is needed. The process for making green hydrogen is powered by renewable energy sources, such as wind or solar. That makes green hydrogen a clean energy source – hydrogen from renewable energy sources without CO<sub>2</sub> as a by-product". Haynes, "The Difference between Green Hydrogen and Blue Hydrogen".

vehicle and transportation segment in Israel will very much affect the supply and demand scenarios for Alternative Sources in Israel, especially with regard to hydrogen, LNG, methanol, or CNG. It is a generally accepted principal that hydrogen, for example, will be one of the preferred fuels of choice for the future vehicle and transportation segment because it can be produced with a low carbon footprint from natural gas or water and has similar range and energy values in comparison to modern-day petrol when used in cars.

As such, experts foresee an immediate need to initiate a "timely deployment of infrastructure across the whole supply chain ... to meet hydrogen demand".<sup>6</sup> The up-side for using hydrogen as a preferred fuel for vehicles of the future is that it emits minimal by-products when used such as water (H<sub>2</sub>O) and heat—which are both nontoxic to the environment. The downside is that hydrogen can only be delivered either in liquid form below 252.87°C—which (a) requires cooling apparatus, (b) extensive safety measures, and (c) carries high energy costs—or it can be delivered in compressed form if stored between 350 Bar and 700 Bar. This means that any new hydrogen infrastructure must also be cost efficient and matured to the highest safety standards prior to being deployed to the general population. These types of challenges will surely affect the cost-benefit analysis for scaling up hydrogen infrastructure for the vehicle and transportation segment and adopting it into the mainstream of the new Israeli economy.

And another example: How will commercial shipping consume energy in the future? Will ships sail using LNG, hydrogen, methanol, ammonia, or perhaps even CNG as their fuel of choice? What type of refueling depots would need to be made available in Israel's ports in order to serve the demand of international commercial shipping fleets? And where would these Alternative Sources be sourced?

Since there is no clear international standard to follow, at present it is difficult to predict where the market trend will go on this matter at this point in time. Nonetheless, a good market indicator can be better understood by studying the forecast of commercial shipping companies, such as ZIM, an Israeli company that ships containers. ZIM announced in August 2022 that it has entered into a long-term LNG bunkering agreement with Shell that will secure LNG supply for ZIM's recently ordered LNG-fueled vessels that are expected to enter service in 2023.<sup>7</sup>

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<sup>6</sup> McKinsey & Co., *Global Energy Perspective 2022*.

<sup>7</sup> ZIM, "[ZIM Announces Large-Scale Long-Term LNG Bunkering Agreement with Shell](#)", August 31, 2022.

As can be seen, the rise of LNG as a preferred Alternative Source will significantly impact the international shipping industry;<sup>8</sup> this is yet another reason to assume that future demand for LNG will continue to rise (an assumption attributed to both local consumption and export factors). Therefore, LNG will most certainly be a very valuable commodity for Israel to produce at sea in the near future and should be made a strategic matter by the Government.

At this early stage of the transition to "net-zero", one thing is certain: it is very plausible that certain segments of the Israeli economy (such as power generation, industrial, residential, commercial, shipping, transportation, railways, etc.) will each have independent energy value chains that will have its needs met by different means.

The term "energy value chain" refers to the set of unique steps that should be taken by the Government with regards to developing each segment of the Israeli net-zero economy to encourage a swift and efficient transition to Alternative Sources. For example, if the vehicle and transportation industry is truly heading toward adopting hydrogen as a key component for powering cars, then the Government must take all the steps necessary to make hydrogen available to the general public starting from developing the supply side (i.e., causing local production at the source), creating transmission, delivery and storage capabilities, and also developing the demand side, i.e., making hydrogen readily available to the public without interruption, at a reasonable price, at the highest safety standards and on a day-to-day basis. If the Government wishes to promote the adoption of hydrogen-powered cars, then hydrogen must be made available to the public at convenient locations such as gas stations for use with FCEVs. Thus, an entire value chain must be designed and created from scratch to achieve this goal.

As such, the Government will undoubtedly need to carry out a very detailed modeling of supply and demand scenarios for all Alternative Sources in order to prepare the market to respond accordingly.

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<sup>8</sup> "The OECD predicts that the transition to LNG as a maritime fuel will lead to the reduction of maritime pollution and an increase in maritime safety. Such transition will lower the carbon footprint of ships entering ports in heavily populated cities. LNG is largely considered a superior marine fuel with the best option for improving air quality. It is also easily scalable and has been named as the leading choice that could assist in meeting decarbonization goals". Orin Shefler, "A Strategic Perspective for Israel on Contending with Innocent and Transit Passage through Maritime Chokepoints In Wake Of Heightened Energy Collaboration In The Middle East", in Benny Spanier, Orin Shefler and Elai Rettig (eds.), *UNCLOS and the Protection of Innocent and Transit Passage in Maritime Chokepoints* (Haifa: Maritime Policy and Strategy Research Center, University of Haifa and Konrad Adenauer Foundation, 2021), p. 53.

Interestingly, there are currently around "40 countries that [already] ... have dedicated hydrogen strategies in place".<sup>9</sup> In the Netherlands, for example, the government (in partnership with Shell) has already initiated and deployed hydrogen fueling stations alongside major highways as a pilot for adopting hydrogen as a preferred fuel choice for trucks and cars.<sup>10</sup>



Figure 1. A hydrogen refueling station in the Netherlands by Shell<sup>11</sup>

And yet a third example still attributed to the public transportation segment: some market indicators have shown that the public transportation segment may lean toward adopting CNG as one of its Alternative Sources of choice, at least during the interim period. To that extent, in Israel, for example, a local natural gas distributor called SuperGas announced in October 2022 that it has entered into agreements to supply CNG for the Metropolin bus fleet (Metropolin is an Israeli bus and transportation company). SuperGas predicts that it will be able supply up to 600 buses with CNG by 2024.<sup>12</sup>

It is safe to assume that CNG will be an Alternative Source of energy in the new Israeli economy, at least during the interim period. CNG can either be produced directly at sea

<sup>9</sup> McKinsey & Co., *Global Energy Perspective 2022*.

<sup>10</sup> WaterstofNet, "[Shell Opens First Hydrogen Refueling Station of H2Benelux in Amsterdam](#)", *WaterstofNet*, October 13, 2022.

<sup>11</sup> *Ibid.*

<sup>12</sup> ICE, "[SuperGas in a Large Deal: These Buses Will Run on Gas](#)" [In Hebrew], October 2, 2022.



by gas producers at the source and then distributed in pressurized tanks to consumers anywhere in the world, or it can otherwise be produced using dedicated onshore compressors located at exit points at or near the site of consumption or via the national transmission system (NTS) for gas.

CNG could be an especially viable solution for public transportation since Israel has very large quantities of natural gas readily available for immediate consumption that can be easily transmitted from offshore to onshore to the end user at any time.

The problem with CNG is that it must be pressurized at least between 200 to 250 Bar for use in vehicles. Compressing natural gas in large quantities requires a lot of power generation which in itself has a high carbon footprint and a high electricity cost. As such, the CNG market still needs to mature and be proven to have effective safety measures in place in a cost-effective manner. To that extent, carbon mitigation or capturing measures should be carefully evaluated when designing compressing solutions for the production of CNG.

## Land Scarcity and Positioning New Infrastructure at Sea

Another important factor to take into account when advocating the production of energy at sea (especially applicable to the State of Israel) is the issue of land scarcity. The dense and ever-growing population of Israel has driven massive urban construction,<sup>13</sup> has raised public awareness to environmental concerns,<sup>14</sup> and has triggered objections to positioning energy-centric infrastructure near cities or towns (the NIMBY phenomenon – Not In My Back Yard).<sup>15</sup> In the future, there will be less and less available land in Israel to build the variety of new energy infrastructure needed to cater the ever-growing energy portfolio.

Israel has for years deliberated on the potential of establishing artificial islands for a variety of purposes. Such discussions and plans have often included initiatives to construct artificial islands for new airports, energy hubs, platforms, sea ports and more. For such a small country like Israel, it makes perfect sense to seek new ways to use the vast and unpopulated Mediterranean Sea as a preferred location for Israel's new energy facilities. Even more so since the majority of Israel's energy supply and natural resources are already sourced at sea from its oil and gas reservoirs.

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<sup>13</sup> Arik Mirovsky "[Building Starts in Israel Hit 26 Year High](#)", *Globes*, March 20, 2022.

<sup>14</sup> Tamar Pileggi, "[Hundreds Protest in Tel Aviv against Natural Gas Deal](#)", *Times of Israel*, July 4, 2015.

<sup>15</sup> Hagay Hacohen "[Thousands in Tel Aviv protest location of planned Israeli gas platform](#)", *Jerusalem Post*, September 2, 2018.

There are currently many international precedents to rely on when promoting the construction of artificial islands (in any form) for energy-centric infrastructure and hubs. One such recent example can be identified in Belgium. Belgium has already announced plans to construct an artificial energy island almost 45 km off the Belgian coast. This energy island is intended to serve as a link between offshore wind farms and an onshore high-voltage grid.<sup>16</sup> It will house critical energy-producing infrastructure. This new type of artificial island modeling can be adjusted and re-developed specifically for Israel's needs in one form or another.

## Aspects of the United Nations Convention on the Law of the Sea (UNCLOS)

But before "deep diving" into the practical aspects of initiating new energy projects at sea, Israel must establish its fundamental right to do so. Israel is a coastal state according to international law and is entitled to an exclusive economic zone (EEZ). This right stems from Article 56 of the United Nations Convention of the Law of the Sea (UNCLOS) that states as follows:

In the exclusive economic zone, the coastal State has:

- Sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds;
- jurisdiction as provided for in the relevant provisions of this Convention with regard to: (i) the establishment and use of artificial islands, installations and structures; (ii) marine scientific research; (iii) the protection and preservation of the marine environment.<sup>17</sup>

Israel has a right, among other things, to establish and use artificial islands, installations, and structures in its EEZ to explore, exploit, conserve, and manage the natural resources thereto, and also to conduct economic exploitation activities such as the production of energy from the water, currents, and winds.

Based on these principles, Israel recently commissioned its first deep water Floating Production and Storage Offloading (FPSO) located in its EEZ citing the recent start-up of the Energean "Power" FPSO for the Karish gas field, which began producing natural gas and derivatives for Israel late in 2022.

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<sup>16</sup> Offshore Magazine, "[Elia Planning 'World's First' Artificial Energy Island](#)", October 3, 2022.

<sup>17</sup> [United Nations Convention of the Law of the Sea \("UNCLOS"\)](#), Article 56.



Figure 2: The Energean "Power" FPSO crossing the Suez Canal<sup>18</sup>

This ground-breaking project has already set the stage for all future offshore developments in the eastern Mediterranean and has become the case study for which Israel's jurisdiction in its EEZ has been crafted. It is very likely that in the near future, additional floating energy infrastructure or other forms of artificial islands will be announced based on the current experience accumulated through the commissioning the Energean FPSO.

### Aspects of Israeli Law, Regulation, and New Government Initiatives

Israel's own interpretation of its rights and responsibilities in its EEZ were originally defined in a legal opinion issued by the Government in January 2013 (Legal Opinion).<sup>19</sup> Also, Israel officially declared the maritime boundaries of its EEZ through several formal

<sup>18</sup> Image used in article by Nermina Kulovic, "[Crossing of Energean Power FPSO Marks 'First-of-Its-Kind' in History of Suez Canal](#)", *Offshore Energy*, June 3, 2022.

<sup>19</sup> A legal opinion issued on January 13, 2013, by Adv. Avi Licht (the deputy attorney general at that time) determining, among other things, that Israeli regulation on oil and gas, environmental protection, and fiscal laws of the State of Israel apply to marine areas. This legal opinion also determined that these laws applied to the surface and the subsurface of the sea and the legal basis for applying these laws to the marine areas was, first and foremost, the Underwater Areas Law—1953.

actions including: (a) entering a delimitation agreement signed with Cyprus in 2010 (Agreement with Cyprus), (b) issuing a government decision about its northern maritime border with Lebanon in 2011 (Government Decision), and (c) entering a new delimitation agreement with Lebanon announced in October 2022 regarding the settlement of the northern maritime boundary line dispute (Agreement with Lebanon). Additionally, there is a new draft law in its final stages prior to enactment titled the Marine Areas Law–2017 (Draft Marine Areas Law) that clearly establishes the scope of Israeli jurisdiction in the EEZ (to the extent necessary) in order to exercise Israel's sovereign rights according to international law.<sup>20</sup>

The Legal Opinion, the Agreement with Cyprus, the Government Decision, the Agreement with Lebanon, and the Draft Marine Areas Law have all cherry-picked key principles from UNCLOS and international law, among others, and applied them to Israeli law in order to establish the necessary legal framework for exploiting Israel's natural resources in its EEZ. By defining the scope of its EEZ, Israel has marked the territory in which it has rights to establish dedicated offshore infrastructure in accordance with the law of the sea. This is an especially tricky task since Israel is not an actual signatory to UNCLOS but has traditionally accepted UNCLOS as customary international law and mostly abides with the majority of the provisions set forth thereto.<sup>21</sup>

In parallel, the Government ministries (such as the Ministry of Energy, the Ministry of Environmental Protection, and more) are all currently deeply involved in analyzing the strategic importance of expanding the applicable uses of the Israeli EEZ. One significant initiative is a recent request for information and tender issued by the Ministry of Energy titled "Strategic Environmental Assessment for examining the production of renewable energy and developing climate technologies for the marine areas of Israel" (SEA Report).<sup>22</sup>

In the upcoming SEA Report, for which a tender has been (or is expected to be) issued by the end of 2022 or the beginning of 2023, the Government will examine and collect critical maritime data necessary in its EEZ in order to (a) establish a database for policies and decisions about potential exploitation of Israel's natural resources in the EEZ, (b) make recommendations about the best ways to exploit the natural resources in the EEZ, and (c) establish the preferred locations in the EEZ for construction of new infrastructure to allow

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<sup>20</sup> [The Proposed Marine Areas Law—2017](#).

<sup>21</sup> See also Benny Spanier, "[The State of Israel and the Convention on the Law of the Sea: The Current State](#)", in *Maritime Strategic Evaluation for Israel 2021/22*, ed. Shaul Chorev and Ziv Rubinovitz (Haifa: Maritime Policy and Strategy Research Center, University of Haifa, 2022), 301–310.

<sup>22</sup> Issued under the guidance of Directive 2001/42/EC on the assessment of [the effects of certain plans and programs on the environment](#) (SEA Directive).

such exploitation. According to the Ministry of Energy, a SEA Report is the recognized method for all OECD states to build tools necessary to initiate new infrastructure.<sup>23</sup> These actions correlate to actions taken by many other governments in the regions in parallel.

To be clear, if, as a result of the SEA Report, certain areas in the Israeli EEZ are found to have an appropriate wind factor suitable for offshore wind electricity production, then a consequence could be that the Government would issue offshore licenses to construct offshore wind farms in that area of the EEZ. Or, if, as a result of the SEA Report, certain areas are found to have strong tidal currents or wave strength suitable for offshore electricity production, then a consequence could be that the Government would issue licenses to construct tidal or wave farms in that area in the EEZ.

As such, based on the results of the SEA Report, the potential of producing Alternative Sources at sea will eventually be evaluated and better understood by the Government. The SEA Report process will then encourage private entrepreneurs to initiate and carry out studies or research with respect to energy production at sea through Government-backed fast-track approval processes and allocation of dedicated areas in the EEZ for this purpose.

## Applicable Offshore Technologies

### *Oil, Natural Gas, and Derivatives*

At present, Israel has already established four offshore energy projects within its territorial waters and its EEZ (Existing Offshore Infrastructure).<sup>24</sup> The Existing Offshore Infrastructure were built over the span of at least twenty years with a primary purpose of producing natural gas and derivatives for the local and regional markets. The construction of the Existing Offshore Infrastructure has contributed significantly to securing Israel's energy security, and have elevated Israel's geopolitical position to that of an "energy producer" and "regional gas exporter".

The Existing Offshore Infrastructure are expected to continue to produce energy for Israel and the surrounding region during the interim period and possibly long after that—and there are also immediate plans to increase their production capabilities significantly for additional export scenarios.

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<sup>23</sup> See presentation delivered by the Israeli Ministry of Energy regarding the foundations of the Sea Report. Ministry of Energy, "[Webinar on Renewable Energy at Sea-13.7.2022](#)" [In Hebrew], *YouTube*, uploaded July 17, 2022.

<sup>24</sup> The four offshore projects are: The "Mari-B" platform (Operator: Chevron), the "Tamar" platform (Operator: Chevron), the "Leviathan" platform (Operator: Chevron), and the Karish FPSO (Operator: Energean).



Figure 3: The Leviathan Platform located within Israel's territorial waters<sup>25</sup>

At a global level "gas demand is projected ... to increase by at least 16% before it reaches a peak in 2040".<sup>26</sup> Moreover, in the years to come, "additional demand for imported [or exported] gas supplied by LNG, ... is projected to lead to a growth of 20–70% by 2050 compared to 2019".<sup>27</sup> Such projected demand scenarios for natural gas and LNG are especially accurate with respect to European countries who all have shortages of natural gas supply and have each developed dependency on Russian natural gas and are suffering from the backlash of the war between Russia and Ukraine.

As such, the European energy markets are presumed to be constantly seeking ways to increase their natural gas and LNG supply through import. The global energy demand scenarios, in turn, will trigger the continuous expansion of Existing Offshore Infrastructure production capabilities for export purposes and the initiation of new projects in the Israeli EEZ. As the Existing Offshore Infrastructure are expanded in Israel to meet the natural gas and LNG demand scenarios and as new offshore projects are conceived, it will be equally important for the Government to take further action to manage the increased carbon footprint attributed to the increase in the production capabilities.

### *Natural Gas and Alternative Sources (Such as LNG, CNG, Hydrogen, Ammonia, and Methanol)*

Given the above, the potential growth of the natural gas and derivatives sectors in Israel and the region will most probably trigger the construction of regional LNG facilities for

<sup>25</sup> Image from NewMed Energy, "[Leviathan, with 22.9 TCF of Recoverable Gas, Is the Largest Natural Gas Reservoir in the Mediterranean, and One of the Largest Producing Assets in the Region](#)".

<sup>26</sup> McKinsey & Co., *Global Energy Perspective 2022*.

<sup>27</sup> Ibid.

export. There are already several plans of action in place with respect to constructing floating liquefied natural gas (FLNG) facilities in the Israeli EEZ. This would be an ideal scenario from the concessionaire's perspective and would also align with European interest at this time. The question still remains whether or not the Government will support and approve such plans in the near future.



Figure 4: Future prospects for an FLNG facility in Israel's EEZ<sup>28</sup>

Fast-tracking FLNG projects will be essential if Israel and its concessionaires intend to capitalize on the growing natural gas and LNG potential in the near future. The same logic will apply to the initiation of new offshore hydrogen projects in Israel's EEZ. According to Exxon, the "global hydrogen demand is forecasted to more than double by 2030, with substantial increases from the power, industrial, and transportation sectors".<sup>29</sup>

Furthermore, Exxon estimates that the "size of the hydrogen market globally could be more than \$1.5 trillion by 2050".<sup>30</sup> On hydrogen issues, Chevron has also recently started working with "Toyota, Caterpillar, Cummins and other companies to explore hydrogen's potential and create demand",<sup>31</sup> and also has begun "to promote hydrogen as a decarbonizing solution for transportation and industry".<sup>32</sup>

<sup>28</sup> Image from the article by Josh Lewis, "[Shell's Prelude FLNG to Remain Offline for Most of Q1](#)", *Upstream: Energy Explored*, February 4, 2022.

<sup>29</sup> ExxonMobil, "[Things You Didn't Know about Hydrogen](#)", *EnergyFactor by ExxonMobil*, August 24, 2022.

<sup>30</sup> *Ibid.*

<sup>31</sup> Chevron, "[Inside Our Alliances to Boost Hydrogen](#)", *Chevron*, October 7, 2022.

<sup>32</sup> *Ibid.*

These industrial efforts by major stakeholders will have tremendous influence on the way forward with respect to producing energy at sea in Israel since Exxon and Chevron are both key players in the global natural gas markets, and Chevron in particular operates the majority of Israel's Existing Offshore Infrastructure.<sup>33</sup> To that extent, "natural gas [will definitely] play a new role in blue hydrogen and ammonia production [as well]".<sup>34</sup> This will be a central role.

Another option to consider is repurposing Existing Offshore Infrastructure for production of low-carbon fuels such as hydrogen.<sup>35</sup> The possibility of repurposing Existing Offshore Infrastructure is highly applicable in Israel, especially with respect to establishing a hydrogen hub. For example, the Mari-B platform, operated by Chevron and partners, is currently standing idle following the depletion of all its subsea wells. Mari-B is a good candidate for repurposing activities initiated by Chevron with respect to producing energy from the sea. Experts predict that "regions with cost-optimal production resources, such as natural gas or renewable energy, could become major hydrogen export hubs and be at the forefront of a new global hydrogen trade".<sup>36</sup> This will very likely be the case for the State of Israel.

On the issue of expansion or repurposing of Existing Offshore Infrastructure, various offshore technology providers or EPC (engineering, procurement, and construction) contractors have introduced designs for establishing blue and green hydrogen hubs. One of the more significant solutions that has been presented is offered by TechnipFMC.<sup>37</sup> TechnipFMC has introduced a concept for generating hydrogen by electrolyzing seawater using renewable power and is working with partners on demonstrating the effectiveness of large-scale offshore hydrogen production and storage using renewable energies such as wind turbines.<sup>38</sup> The TechnipFMC solution is scalable and can be configured for a variety of applications, albeit this technology is still at a very early stage.

It may prove to be very effective in initiating technical discussions and international forums between Investors, Operators, EPC contractors, and the Government in order to

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<sup>33</sup> Glen Segell, "[The Chevron Corporation and the State of Israel](#)", in *Maritime Strategic Evaluation for Israel 2021/22*, ed. Shaul Chorev and Ziv Rubinovitz (Haifa: Maritime Policy and Strategy Research Center, University of Haifa, 2022), 251–259.

<sup>34</sup> McKinsey & Co., *Global Energy Perspective 2022*.

<sup>35</sup> *Ibid.*

<sup>36</sup> *Ibid.*

<sup>37</sup> [TechnipFMC Website](#), Retrieved December 2022.

<sup>38</sup> *TechnipFMC*, "[Hydrogen](#)", Retrieved December 2022.



review the possibilities for adopting some of these solutions and establishing a hydrogen hub offshore Israel.

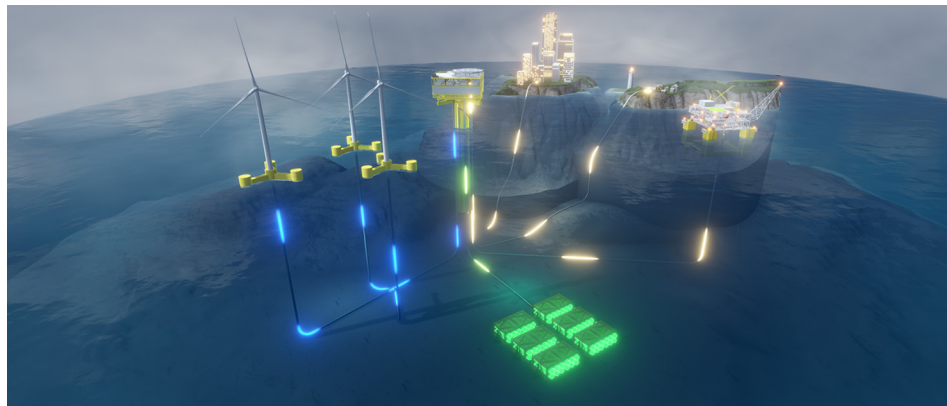


Figure 5: Future scenarios for offshore infrastructure for the production and storage of offshore electricity and/or hydrogen as envisaged by TechnipFMC<sup>39</sup>

At the midstream level, the Government has already taken action in preparation for the emerging hydrogen economy. The natural gas authority (NGA) recently authorized a study to be carried out by Israel Gas Lines Limited (INGL) to examine the effects of the emerging hydrogen market on the national transmission system (NTS) and the purpose of the national transmission company.<sup>40</sup> The purpose of the study will be to map out and to understand the capacity for using or repurposing the NTS with respect to storing, transmitting, or commingling hydrogen with natural gas in the future.

### *Offshore Wind Farms and Production of Offshore Electricity*

The construction of offshore wind farms in Israel's EEZ may also be applicable to the extent that the SEA Report is able to identify suitable areas in the EEZ with an appropriate wind climate. Clearly, at this point in time, "solar and wind builds already come at a lower cost than existing fossil fuels in most countries and are projected to become increasingly cost competitive globally".<sup>41</sup> At the global level, it is becoming more and more common to see offshore wind farms catering to the needs of energy hubs at sea as a means to

<sup>39</sup> Image from *ibid.*

<sup>40</sup> "[A Call to Anyone Interested in Submitting Their Proposal Or Position On Imposing A Systemic Tariff For 2023](#)", a letter issued to the general public by the Natural Gas Authority (NGA) on October 6, 2022 (in Hebrew).

<sup>41</sup> McKinsey & Co., *Global Energy Perspective 2022*.

provide net-zero electricity to energy-centric production and other processes at sea, for which the carbon footprint must be mitigated. This will be especially relevant when discussing the future potential for producing LNG and hydrogen offshore.

The European Union has been investing for years in the establishment of offshore wind farms, and the EU prides itself as being a "first mover" on this matter. In November 2020, the EU set very ambitious goals with respect to the continuous development of offshore wind and is aiming for an installed capacity of at least 60 GW of offshore wind by 2050.<sup>42</sup>

In the United States, the Department of Energy (DOE) through the Office of Energy Efficiency and Renewable Energy (EERE)<sup>43</sup> has initiated many offshore wind projects that are now currently in operation in US waters. Among others, the EERE funds R&D and demonstration activities in US waters with the intent of making renewable energy (such as offshore wind) cost-competitive with traditional sources of energy.



Figure 6: Possible future offshore wind farms in Israel's EEZ<sup>44</sup>

The Biden-Harris administration, acting through the DOE and EERE, has allocated tens of millions of dollars to fund research and development projects that will lower costs for wind energy projects on land and offshore.<sup>45</sup> Offshore wind is still a fledgling enterprise in the United States in comparison to its potential, and as such, the EERE has defined the following issues as core for eligibility for US government funding: (a) advancing

<sup>42</sup> "[Offshore Renewable Energy](#)", *European Commission*, Retrieved December 2022.

<sup>43</sup> The US Department of Energy, [Office of Energy Efficiency and Renewable Energy Website](#), Retrieved December 2022.

<sup>44</sup> Image from National Grid, "[What Is Offshore Wind Power?](#)".

<sup>45</sup> The US Department of Energy, "[Biden-Harris Administration Announces \\$30 Million from Bipartisan Infrastructure Law to Speed Up Wind Energy Deployment](#)", *Energy.gov*, October 18, 2022.

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technologies needed to transmit large amounts of electricity from offshore wind over long distances, (b) improving the offshore permitting processes, (c) improving technologies to minimize impacts to local wildlife and ecosystems, and (d) developing optimal anchoring and mooring for deep water applications.<sup>46</sup>

An ongoing dialogue between the DOE, EERE, and the Israeli Ministry of Energy would be beneficial to prioritizing the offshore wind potential for Israel. Nonetheless, it remains to be established if Israel has commercially viable wind within its EEZ that could justify promoting offshore wind farms. If so, the potential for establishing offshore wind farms in Israel's EEZ shall increase significantly.

## Conclusions

The implementation of Israel's net-zero strategy going forward is still a work in progress. Nonetheless, the die is cast (*Ālea iacta est*), and there is no turning back. As we move forward, it will be the Government's responsibility to provide clarity to the market with respect to new supply and demand value chains for energy production and consumption. Clarity will be achieved by developing reliable supply and demand models for Alternative Sources, which will prove to be critical for putting together proper business models, attracting investors and raising capital to complete an effective transition to net-zero.

Additionally, the Government will need to issue clear guidelines and policies and set realistic goals for diversifying the Israeli energy portfolio to meet the "net-zero" requirements of the future. It is already very clear that there will be an expected increase in the demand for hydrogen and LNG, which means that concrete plans should already be put in place to initiate offshore projects to cater this growing demand.

Furthermore, the Government must find solutions to address the growing land scarcity issue in Israel by taking positive measures to encourage the construction of new infrastructure at sea including defining options for construction of artificial islands or fixed or floating solutions away from the civilian populations.

Going forward, it will also be the Government's responsibility to engage in transparent dialogue with all the relevant parties (including international offshore operators, EPC contractors, technology providers, investors, etc.) to make sure that the best available technologies are matured, deployed, and made available to Israel in the near future.

Clearly, the market drivers for producing energy at sea are, and will always be, the significant oil and natural gas fields in Israel's EEZ. Therefore, all aspects of current and

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<sup>46</sup> Ibid.

future exploration, development and production of traditional hydrocarbon resources must be further encouraged, explored, and developed to secure the continuous production of a natural gas supply for local and regional needs, on the one hand, but also as the basis for sourcing new and Alternative Sources at sea (such as LNG, CNG, hydrogen, ammonia, and methanol) to cater to the needs of tomorrow, on the other hand.

Notwithstanding, as Israel continues to develop its traditional hydrocarbon industry, it will be equally important to ensure that the carbon footprint remains at minimal levels. To do this, carbon capture technologies should be explored for new offshore projects going forward, and also priority should be given to completing a transition to renewable energy at sea (such as offshore wind) to cater the power needs of offshore infrastructure. And finally, the Government should exhaust all efforts to establish viable energy hubs for natural gas, hydrogen, LNG, and electricity production in the territorial waters of Israel or its EEZ.

## Egypt and its Exclusive Economic Zone (EEZ) in the Mediterranean

*Shlomo Guetta*

In late September 2022, it was reported that over the course of the year, Turkey had become the biggest importer of liquefied natural gas (LNG) from Egypt, of the ten states that imported this commodity from Egypt.<sup>1</sup> According to this report, in the first three quarters of 2022, Egypt had exported some 880,000 tons of LNG to Turkey for a total sum of \$1.1 billion.

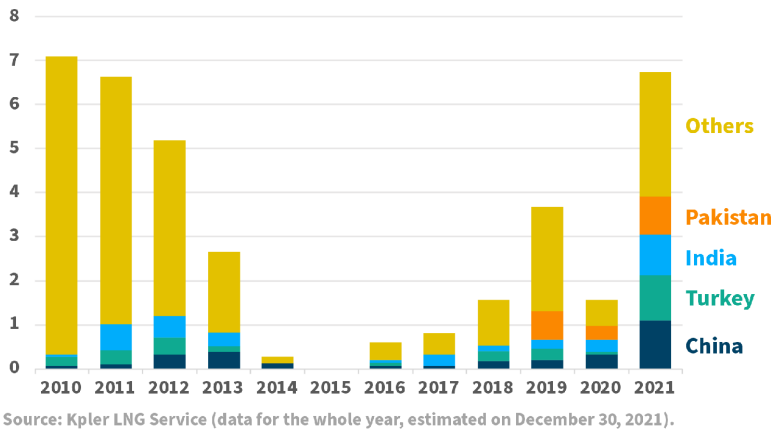


Figure 1: LNG exports (millions of tons) to various states in 2010–2021<sup>2</sup>

From Figure 1, we see that exports of LNG from Egypt to Turkey are increasing. Although we do not yet have definitive data for 2022, it appears that Turkey imported more LNG from Egypt than any other market this year. By way of estimation, the total scope of Egyptian exports to Turkey stands at a record of nearly one million tons, or over \$1.1 billion—despite the existing tensions and rivalry between the two states, as we shall discuss below.

The gas and energy market is primarily affected by economic profit-and-loss considerations, not diplomatic or ideological considerations. Indeed, interstate tensions do not entail a lack of trade, even in the gas market, as we see from this example of Turkish-Egyptian commerce, or indeed from Israel's supply of gas through Egypt to Jordan and from there to Syria and Lebanon.

<sup>1</sup> [Mahmoud Gamal](#), *Twitter*, September 28, 2022.

<sup>2</sup> [Nikos Tsafos](#), *Twitter*, December 30, 2021.

Since the overthrow of President Mohammed Morsi (the leader of the Muslim Brotherhood in Egypt) in 2013, relations between Egypt and Turkey have been marked by rivalry and tension. In the past three years, since the end of 2019, tensions between the two countries escalated against the backdrop of the Libyan Civil War, when Turkey masterminded the signing of an agreement with the Government of National Accord in Tripoli (the GNA in western Libya) over a shared exclusive economic zone. The agreement caused tensions with Egypt, which supports the National Liberation Army government in Tobruk and Benghazi (the LNA in eastern Libya).<sup>3</sup> The Libyan-Turkish EEZ agreement also sparked tensions, as we shall see, in connection with Greece and Cyprus' own EEZs.

In this context, against the backdrop of these tensions over the demarcation of EEZs in the Eastern Mediterranean, we should note that Egypt has a treaty with Cyprus determining the boundaries of their respective EEZs, and another such treaty with Greece, in addition to a *de facto* agreement with Israel.

Therefore, notwithstanding the political rivalry and tensions, in the economic domain, Egyptian-Turkish relations have not been adversely affected. On the contrary, they have continued to flourish, with Egypt seizing its greatest advantage in the Eastern Mediterranean and establishing two large-scale liquefaction plants on its Mediterranean coast—the Idku liquefaction plant and the Damietta facility, which was reactivated in 2021 after an eight-year hiatus,<sup>4</sup> in light of growing demand for LNG—in addition to an LNG storage terminal at Ain Sokhna in the northern Gulf of Suez.

Unrelated to Turkish-Egyptian relations and commercial ties, including in the LNG market, it goes without saying that Egypt's advantage in terms of natural gas liquefaction and storage infrastructure has been helping it during the Russo-Ukrainian War, which has triggered shortages in western European countries, where demand now outstrips supply. Egypt now sees itself as a provider of LNG to the nations of Europe and Asia, so much so that it is cutting back on its own local consumption of gas in order to increase its surpluses for export, especially to Europe. The reason is that the Europeans are now willing to pay an extremely high price for LNG, especially to cover the winter of 2022–2023.

Egypt's minister of petroleum and mineral reserves, Tarek el-Molla, said in June 2022: "We have ambitious plans to coordinate with neighboring Eastern Mediterranean countries on

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<sup>3</sup> Biancamaria Vallortigara, "[Will the proxy war in Libya become proxy peace?](#)" in Uzi Rabi and Tony Marko (eds.), *Middle East Crossroads* (June 6, 2021) [Hebrew].

<sup>4</sup> [Egypt exported 30 LNG shipments from Damietta, Idku plants in Q1 2021](#), *Energy Egypt*, April 11, 2021.

meeting the increased demand from the EU — and the world — for LNG over the next few years."<sup>5</sup>

He was joined in the latter half of September 2022 by Egypt's finance minister, Mohamed Maait, who announced monthly revenues of \$500 million from natural gas exports, with the hope of hitting \$1 billion in monthly revenues. Egypt is pushing to maximize its natural gas exports in order to secure foreign reserves, having been thrown into a financial crisis by the war in Ukraine.<sup>6</sup>

The Egyptian Government says that gas exports were stepped up after it presented its electricity savings plan in August, i.e., its program to reduce domestic consumption in order to divert more gas for export. In order for the Egyptians to be able to meet their \$1 billion target, they must continue to reduce domestic consumption but at the same time also increase extraction from their own gas reserves. Moreover, Egypt will have to boost the quantity of gas at its disposal by increasing its own imports from Israel or Cyprus, liquefying them at its facilities, and then exporting them to international markets at higher prices.

Having established this background, this is the place to outline and analyze Egypt's exclusive economic zone in the Eastern Mediterranean. This EEZ contains the bulk of Egypt's major gas reserves, from the El-Arish region in the northern Sinai in the east of the country, all the way to the maritime boundary with Libya in the west. Egypt's gas reserves have grown eightfold in recent years, relative to its known reserves in 2010-2014. Egypt's known gas reserves now stand at 36.8 trillion cubic feet<sup>7</sup>—and counting, in my assessment.

This resource, of abundant gas reserves in the Eastern Mediterranean, provides one of Egypt's main sources of income alongside its revenues from the Suez Canal, which also provides Egypt with a substantial revenue stream. Twelve percent of global trade passes through the Suez Canal, and in July 2022, the canal (and therefore Egypt) registered record revenues of \$704 million. This figure is far higher than the \$531.8 million of revenues in the same month in the previous year, representing a rise of \$172.2 million—a 32.4 percent increase.<sup>8</sup>

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<sup>5</sup> Minister el-Molla quoted in: [Egypt's natural gas, LNG export revenues double in first four months of 2022](#), *Energy Egypt*, June 1, 2022.

<sup>6</sup> "[Egypt Reports \\$500 Million Monthly Income from Natural Gas Exports](#)", *Pipeline and Gas Journal*, September 22, 2022.

<sup>7</sup> Hiba Zin, "[Egypt's Transformation into a Regional Energy Hub via the Gas Facilities Project in the Recent Eight Years](#)", *Almarsad Almasry*, June 8, 2022 (translated from Arabic by Moshe Uzan).

<sup>8</sup> Shai Hayut, "[Data on the new Suez Canal](#)", *COB*, August 13, 2022 [Hebrew].

It follows that Egypt's EEZ in the Eastern Mediterranean and in the future, its EEZ in the Red Sea—a strategic asset of national importance for Egypt—can explain the accelerated build-up of the Egyptian Navy and construction of military ports over the past decade.<sup>9</sup>

As a neighboring state, enjoying peaceful relations with Egypt, it would be prudent for Israel to consider cooperation with Egypt in the fields of not only economics and commerce, but also security and the confrontation with external threats, such as from terror organizations or state sponsors of terror, or both.

### Exclusive economic zones in the Mediterranean: agreements, conflicts, and tensions

The states along the coastline of the Eastern Mediterranean claim exclusive economic zones (EEZs). Some of these EEZs are matters of agreement between states, but others are still disputed. Egypt is one of the states whose EEZ has been agreed with its neighbors: with some, *de jure*; with others, *de facto*.

Table 1 lists the states in the Eastern Mediterranean to which EEZs may be attributed: Cyprus, Greece, Turkey, Egypt, Israel, Lebanon, Syria, and even a small sliver belonging to the Palestinian Authority off the coast of the Gaza Strip. As we can see from this table, Egypt's EEZ in the Eastern Mediterranean stretches over an expanse of 236,000 km<sup>2</sup> (91,120 square miles), representing 19 percent of the total EEZs in this region. It should also be noted that recently, the possibility has also emerged for future Egyptian discoveries of gas reserves in the Red Sea, following the announcement of gas exploration tenders for ten zones from the northern Red Sea to the border with Sudan; tenders have already been won to explore three of them.<sup>10</sup>

On February 17, 2003, Cyprus and Egypt signed an agreement demarcating their EEZs, which achieved U.N. recognition.<sup>11</sup> In this context, we should note that later, in December 2010, Israel also signed its own EEZ agreement with Cyprus.<sup>12</sup>

<sup>9</sup> Yitzhak Vardi and Shlomo Guetta, "[Interview with Vice Admiral Ahmed Khaled](#)", Maritime Policy & Strategy Research Center, University of Haifa, February 2, 2022 [Hebrew].

<sup>10</sup> On this issue of the potential for Egypt to discover and develop natural gas in its Red Sea EEZ, see: Shlomo Guetta, "Exclusive Economic Zones (EEZ) in the Red Sea Region: Risks and Opportunities" in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2022), 221–243.

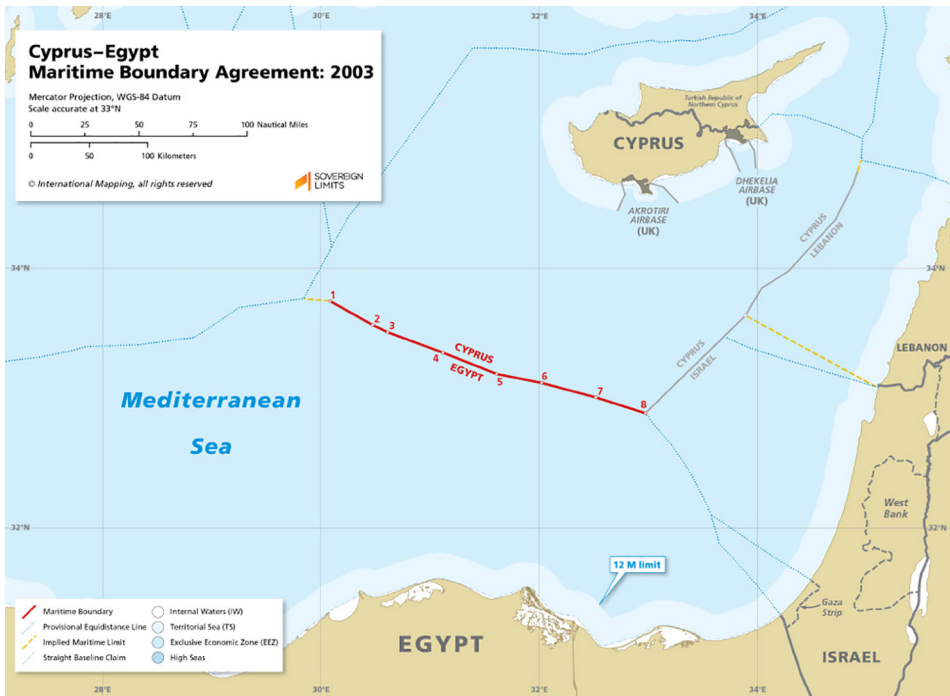
<sup>11</sup> [Agreement between the Republic of Cyprus and the Arab Republic of Egypt on the Delimitation of the Exclusive Economic Zone](#), February 17, 2003.

<sup>12</sup> Yuval Yoaz, "[The agreement with Cyprus about the maritime boundary will be anchored in law](#)", *Globes*, December 17, 2013 [Hebrew]; Avi Bareli, "[Israel and Cyprus agreed on the boundary of their EEZs](#)", *The Marker*, December 19, 2010 [Hebrew].



Table 1: Exclusive Economic Zones in the Mediterranean

EEZ	Size (km <sup>2</sup> )	Size (as % of total EEZs in the Eastern Mediterranean)
Palestine	1,668	0.001%
Syria	10,181	1%
Lebanon	19,261	2%
Israel	20,090	2%
Cyprus	98,044	8%
Joint Turkey-Libya EEZ	107,000	9%
Egypt	235,895	19%
Turkey	255,744	21%
Greece	493,235	40%
Total EEZs, including declared Turkey-Libya EEZ	1,247,117	100%

Figure 2: Map of the agreement demarcating Egypt and Cyprus' EEZs, 2003<sup>13</sup>

Israel and Egypt do not have an official, signed agreement demarcating the boundary between their EEZs in the Mediterranean. In practice, however, they have understandings, because Israel has already publicized the scope of its EEZ and gas and petroleum

<sup>13</sup> [Cyprus-Egypt](#), Sovereign Limits, Retrieved December 23, 2022.

exploration areas, and Egypt has also marked out its own claims. In meetings and discussions with the Israeli Ministry of Foreign Affairs and Ministry of Energy a few years ago, in preparation for the publication of a tender, there were no discrepancies between the nations' demarcations, besides one small area, apparently because of differences in the method for determining the placement of the boundary, as defined by each respective state.<sup>14</sup>

In late 2019, Turkey pursued a fairly dramatic shift in its approach to existing agreements. In the latter half of the preceding decade, Turkey had adopted a doctrine that it called "Blue Homeland" (*Mavi Vatan*), which stated that Turkey enjoyed much greater economic rights in the Mediterranean than previously recognized. In a move to implement this doctrine, Turkey signed a memorandum of understanding with the Tripoli-based government of Libya in 2019, demarcating a shared EEZ for the two nations (Figure 3: a trapezoid area from the middle of the Turkish coast to the eastern shoreline of Libya).<sup>15</sup>

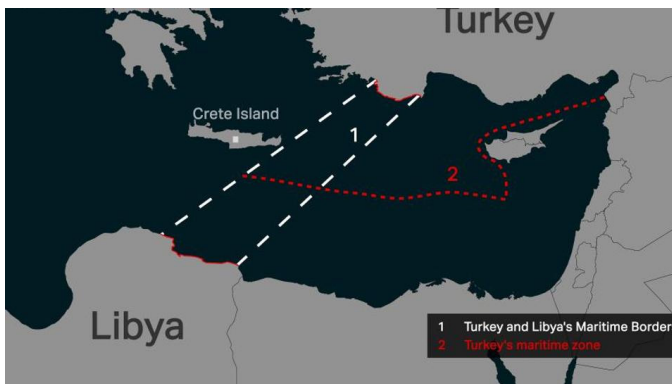


Figure 3: Demarcation map of EEZs in the Eastern Mediterranean, including the joint Turkish-Libyan area unilaterally declared by the two nations.<sup>16</sup>

The memorandum of understanding between Turkey and the Libyan government in Tripoli shocked the nations of the Eastern Mediterranean, and moreover, it came at the height

<sup>14</sup> Conversation with Mr. Baruch Pertzman, former head of the hydrography division of the Israeli Navy and former head of the cartographic reproduction department at the Survey of Israel. To the best of his knowledge, the agreement between Israel and Egypt has not been signed. He says that a tender was published and no subsequent problems emerged with the Egyptian side.

<sup>15</sup> Omri Eilat and Ayal Hayut-man, "[The Turkish Maritime Doctrine – The 'Blue Homeland' \(\*Mavi Vatan\*\)](#)", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2020/21* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2021), 187–195.

<sup>16</sup> *Ibid.*, 194.

of the civil war in Libya between the Tripoli government and the Benghazi government, with Turkey, of course, supporting the former and even sending military and naval forces there,<sup>17</sup> while Egypt, as we have seen, supports the rival government in the east of Libya.

As we can see from Figure 4, Cyprus and Greece are the main victims of Turkey's announcement of its Blue Homeland Doctrine, which like the MOU with Libya, similarly transverses and dissects their own EEZs. The Turkish-Libyan agreement is, from Turkey's perspective, an expression of this stated doctrine.

From Egypt's perspective, Turkey's Blue Homeland Doctrine, put into practice, *inter alia*, with the Turkish-Libyan agreement, does not directly undermine its EEZ other than in a marginal area, but Egypt expressed its reservations and concerns about the Turkish side of the agreement, since it positions Turkey militarily on Egypt's western border and poses a potential threat to the integrity of Egypt's EEZ along its maritime boundary with Libya. In Figure 4, we can see that the joint Turkish-Libyan zone slightly encroaches into Egypt's EEZ on its eastern flank.

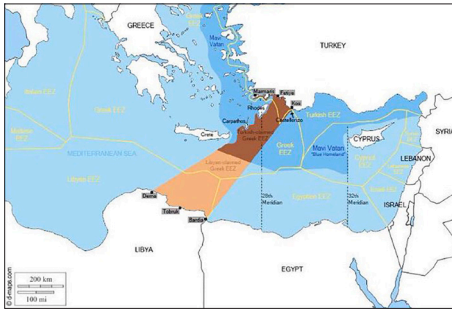


Figure 4: The joint Turkish-Libyan EEZ and its proximity to Egypt's EEZ (in its northwestern corner)<sup>18</sup>

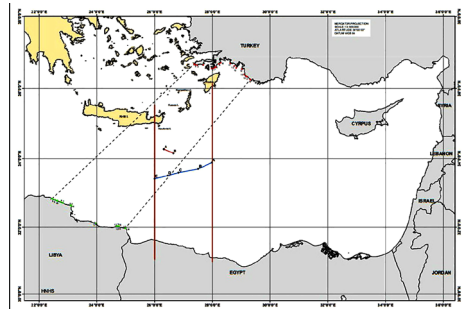


Figure 5: Map of the EEZ agreement between Egypt and Greece, 2020<sup>19</sup>

Moreover, from Egypt's perspective, Turkey's doctrine and joint endeavor with Libya undermine its shared economic interests with Cyprus and Greece. As we recall, Egypt signed an EEZ agreement with Cyprus back in 2003. In the context of this Turkish move,

<sup>17</sup> Shlomo Guetta, "[The Turkish Navy – Its Strengthening Process and Operational Doctrine](#)", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2020/21* (Haifa: Maritime Policy and Strategy Research Center, University of Haifa, 2021), 168–186.

<sup>18</sup> [Egypt says Turkey's seismic survey plans could encroach on its waters](#), *Keep Talking Greece*, August 2, 2020.

<sup>19</sup> [Greece and Egypt sign historic agreement for delimitation of EEZ](#), *Keep Talking Greece*, August 6, 2020.

Egypt and Greece quickly signed an agreement in September 2020, which they deposited with the United Nations in December.<sup>20</sup>

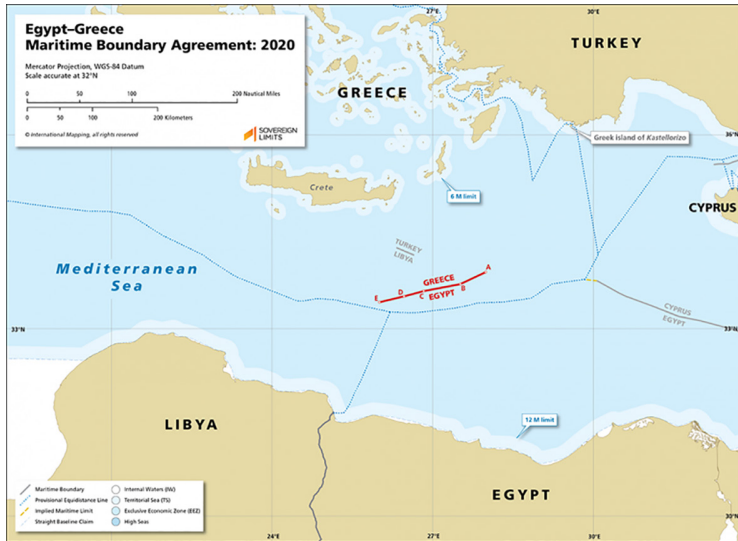


Figure 6: Map of the EEZ agreement between Greece and Egypt<sup>21</sup>

Over the course of 2020, Turkey gave practical expression to its declaration of intent regarding its rights to EEZs in the Eastern Mediterranean in accordance with its Blue Homeland Doctrine and sent drillships, escorted by warships, to conduct surveys and drilling operations in Greece and Cyprus' exclusive economic zones.<sup>22</sup>

In 2021, and for most of 2022, Turkey's pursuit of its Blue Homeland Doctrine calmed down somewhat, but in the first week of October 2022, Libya's Tripoli-based government signed a series of preliminary economic agreements with Turkey, which included provisions for potential energy exploration at sea.<sup>23</sup> It is almost certain that the "maritime areas" in question are the joint Turkish-Libyan EEZ. Predictably, these latest agreements from

<sup>20</sup> EEZ agreement between Greece and Egypt in 2020: [@Emerson14](#), *Twitter*, December 24, 2020; for an analysis of the agreement, see: Ildir Lika, "[The Greece-Egypt Maritime Agreement and Its Implications for the Greek-Turkish Dispute in the Eastern Mediterranean](#)", *SETA Analysis*, no. 67, August 2020.

<sup>21</sup> [Egypt-Greece](#), *Sovereign Limits*, Retrieved December 23, 2022.

<sup>22</sup> For details on Turkish activity in this field, see: Semion Polinov and Shlomo Guetta, "[Turkey: Oruc Reis's geophysical maritime surveys and other research ships in the Eastern Mediterranean](#)", *Maritime Policy and Strategy Research Center*, University of Haifa, September 30, 2020 [Hebrew].

<sup>23</sup> "[Berlin: Greece 'not bound' by Turkey-Libya agreement](#)", *ekathimerini*, October 5, 2022.

October 2022 have provoked resistance and disagreement on the part of the eastern Libyan government, and indeed also from Greece, Cyprus, and Egypt.<sup>24</sup>

From Israel's perspective, Turkey's Blue Homeland Doctrine may have implications for the Israeli-Cypriot EEZ agreement from 2010 as well as for the progression of the EastMed gas pipeline project (which is expected to serve Israel, Egypt, Cyprus, and Greece). Assessments of this project's feasibility and profitability have changed over time, and at present, against the backdrop of the Russo-Ukrainian War and the gas crisis in Europe, the project has become significantly more urgent and worthwhile from Egypt's perspective.

The primary focus of this article is Egypt, but if we are already discussing the web of EEZs in the Mediterranean, it is only proper to recall the dispute between Israel and Lebanon concerning the demarcation of the maritime boundary between them, which was a considerable preoccupation for both parties and mediators in 2022. Ultimately, in October 2022, the two states signed a memorandum of understanding after intense efforts with U.S. mediation.<sup>25</sup>

Egypt is expected to play a role, whether direct or indirect, in the energy relationship between Israel and its neighbors to the north and south, as an interim stage until they reach independence in gas extraction. As for Lebanon, Egypt is involved in the transportation of LNG (which might in fact originate in Israel), to be sent through a pipeline to Jordan and from there, to Syria and Lebanon. As for the economic potential of gas extraction off the coast of the Gaza Strip, here too Egyptian involvement can be expected (and is indeed even desirable), to help to extract gas from the Palestinian Authority's small reservoir, called Gaza Marine.<sup>26</sup>

## The development of the Egyptian gas industry in the maritime domain

The previous section explored the complex web of national EEZs in the Eastern Mediterranean, with a particular focus on Egypt. This section discusses how Egypt has been realizing the latent economic potential of its Mediterranean EEZ.

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<sup>24</sup> For an example of Greece's expected preliminary response, see: LibyaMohammed, "[After the signing of Libyan-Turkish agreement, Greece escalates its position and threatens to use force](#)", *The Libya Observer*, October 8, 2022.

<sup>25</sup> For more, see the article by Benny Spanier and Orin Shefler in this volume.

<sup>26</sup> For more on the possibility of Egyptian involvement in the production of gas from the Palestinian prospect off the coast of the Gaza Strip, see: Rasha Abou Jalal, "[Egypt Persuades Israel to Extract Gaza's Natural Gas](#)", *Al-Monitor*, October 6, 2022.

This field is the responsibility of the Egyptian Ministry of Petroleum and Mineral Reserves, which has been headed since September 2015 by Tarek el-Molla.<sup>27</sup> The natural gas business in Egypt is led by EGAS, the Egyptian Natural Gas holding company, founded in 2001.<sup>28</sup> Foreign energy companies' involvement in the extraction of Egyptian natural gas will be discussed later in this article.

Since the late 1990s, and especially since the turn of the twenty-first century, large and proven natural gas fields have been discovered in the Mediterranean Sea in the maritime domain stretching from Port Said and the northern shores of the Sinai in the east to the shores of the Nile Delta and Alexandria in the west, and now even further west, in the direction of the maritime boundary with Libya.

During Hosni Mubarak's presidency, Egypt placed a severe cap on gas prices and the Egyptian Government refused to pay the foreign gas companies operating these fields more than \$2/BTU, a rate that was simply unprofitable for them. Mubarak's overthrow in 2011 during the events of the Arab Spring, and the subsequent rise of the Muslim Brotherhood regime headed by Morsi, did not fundamentally change the situation, and the Egyptian gas industry continued to falter until 2014, and what is more, Egypt failed to pay its debts to the production companies. In these circumstances, foreign companies saw Egypt as an unreliable business partner.<sup>29</sup>

When President Abdel Fattah el-Sisi rose to power in 2014, Egypt was at a dead end. For years, President Mubarak had neglected the gas market and had not invested in developing new energy sources. After his overthrow, Egypt was thrust into a long period of instability, which plunged the Egyptian Government not only into heavy debts but also into a shortage of gas for domestic consumption. In 2012, the rate of gas production in Egypt began to drop. El-Sisi worked to reduce Egypt's heavy debts and undertook a series of reforms, including the privatization of the gas market, which produced significant new discoveries and boosted extraction efforts in 2015-2019. The high point in the 2010s came with the discovery of the Zohr gas field by the Italian energy company Eni.<sup>30</sup>

Since the formation of the el-Sisi government, foreign companies' confidence in Egypt's abilities to pay its debts has been restored, in a deviation from the past, and they began to enjoy better concession and compensation terms. Moreover, in this period, Egypt

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<sup>27</sup> [Tarek El-Molla](#), *Wikipedia*, retrieved December 2022.

<sup>28</sup> Website of the [Egyptian Natural Gas Holding Company](#) – EGAS.

<sup>29</sup> This state-of-affairs finds expression in a range of sources, specifically in: Hiba Zin, *Egypt's Transformation into a Regional Energy Center*, 2022.

<sup>30</sup> This account is based on a range of sources, including: "[President Sisi urges Italy's Eni to expand its Egypt exploration activities](#)", *Energy Egypt*, October 15, 2020.

became one of the biggest gas producers in Africa (taking third place behind Algeria and Nigeria) and the Eastern Mediterranean. This was thanks to the discovery of enormous gas reserves, especially in Egypt's Mediterranean EEZ.

Egypt's vision is that by 2030, gas production in the country will fully satisfy local demand (which is only growing, owing to population growth) while at the same time leaving sufficient surpluses for export. According to one source, quoting an energy industry professional: "We expect that by 2030, Egypt will have sufficient gas surpluses for export, ranging between around 17-30 BCM a year, and between 7.5-25 BCM a year by 2040."<sup>31</sup> The realization of this vision depends on Egypt's ability to take additional steps to use technology to produce energy from other sources, with the aim of releasing more gas for export, such as developing green energy (wind turbines and solar energy), building a new hydroelectric dam, and setting up a nuclear energy reactor.

This was the forecast as of 2019. In light of developments in the first half of 2022, however, and especially the Russo-Ukrainian War, there have been noticeable changes, as we have seen, and the direction in Egypt nowadays is toward increasing production on the one hand and cutting back on local consumption on the other, in order to leave larger gas surpluses for export. Additionally, there are now more energy production fields as a result of the announcement of new tenders over the past two years, with winning companies selected in the Red Sea and in the Herodotus Basin adjacent to the Libyan border.<sup>32</sup>

The development of Egypt's maritime gas reserves led to the development of a large-scale gas industry out at sea and along the Mediterranean coast, including a pipeline and two LNG liquefaction plants: one at Idku east of Alexandria,<sup>33</sup> and the second at Damietta west of Port Said.<sup>34</sup> It bears noting that a joint Spanish-Egyptian company called SEGAS, a joint venture founded at the start of the twentieth century, is involved with these liquefaction plants in Egypt.<sup>35</sup>

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<sup>31</sup> Amnon Portugali, "[The gas balance in Egypt—growth is up, but so is poverty](#)", *Avoda Shchora*, October 2, 2019 [Hebrew].

<sup>32</sup> On the subject of new tenders on Egypt's western border in the Mediterranean, see: "[Egypt agrees with five majors on West Mediterranean exploration](#)", *Energy Egypt*, February 16, 2020; And in the Red Sea: "[Egypt signs Oil & Gas Exploration Agreements worth \\$1 billion](#)", *Energy Egypt*, January 3, 2021; and "[El Molla: New Oil & Gas exploration tenders coming soon](#)" *Energy Egypt*, January 31, 2021.

<sup>33</sup> For more on the potential of liquefaction at the Idku plant, see: "[Egyptian LNG Project, Idku](#)", *NS Energy*, Retrieved December 23, 2022.

<sup>34</sup> "[Damietta Segas LNG Terminal](#)", *Global Energy Monitor Wiki*, edited July 13, 2022.

<sup>35</sup> For more on the joint Egyptian-Spanish company's operations, see: "[SEGAS Liquefied Natural Gas Complex, Damietta](#)", *Hydrocarbons Technology*, Retrieved December 23, 2022.

As noted, the Damietta liquefaction plant was brought back online in 2021 after an eight-year hiatus. Together, these two plants are capable of producing over 12 million tons of LNG a year. Egypt also has an LNG storage terminal in the northern Gulf of Suez, in a place called Ain Sokhna, which serves to improve the transportation of liquefied gas to and from Asian markets.



Figure 7: Idku LNG plant with an annual production capacity of 7.2 million tons of liquefied gas and the potential for a further increase<sup>36</sup>



Figure 8: Damietta LNG plant, which is back online with an annual production capacity of around 5 million tons of liquefied gas and the potential for a further increase with an expansion<sup>37</sup>

Moreover, Egypt, whose shores and ports lie along the Mediterranean Sea and the Red Sea, will, in my assessment, aim to build another port or two as hub ports (regional natural

<sup>36</sup> Source of illustration: [Welcome to Egyptian LNG](#), Egyptian LNG Website.  
<sup>37</sup> Source of illustration: Mariana Somensi, "[ADNOC LNG Signs \\$860M EPC Contract with Tecnicas Reunidas](#)," *Egypt Oil & Gas*, September 26, 2018.



gas centers) to export LNG from its own reserves and from additional foreign sources, such as Cyprus and Israel.

From an objective perspective, it is universally accepted that Egypt is an important player in the Mediterranean when it comes to EEZs. Other developments that unfolded in 2021-2022 have improved Egypt's ability to remain a central and dominant actor in the production of natural gas from its reserves in its EEZ.

In June 2022, an Egyptian scholar published a paper on Egypt's transformation into a regional energy hub, which is clearly based on up-to-date information from Egyptian authorities. In her account, in 2011–2013, Egypt's development of its energy infrastructure was effectively frozen. In 2014, by implication, following President el-Sisi's rise to power, Egypt reactivated its energy production and exploration efforts. The scholar notes that in 2014–2020, eighty-four exploration agreements were signed with international energy companies, which committed to a minimum investment of \$14.8 billion, with Egypt receiving a \$1.1 billion grant with the signing of drilling agreements for a total of 351 drilling operations. These agreements, and the orderly demarcation of Egypt's gas fields, restored international confidence in the Egyptian energy production market.<sup>38</sup>

## Proven and active gas reserves in the Mediterranean

Statistically, we should note that nearly 60 percent of the gas produced in Egypt comes from its reserves in its Mediterranean EEZ, as illustrated in the diagram in Figure 9.<sup>39</sup>

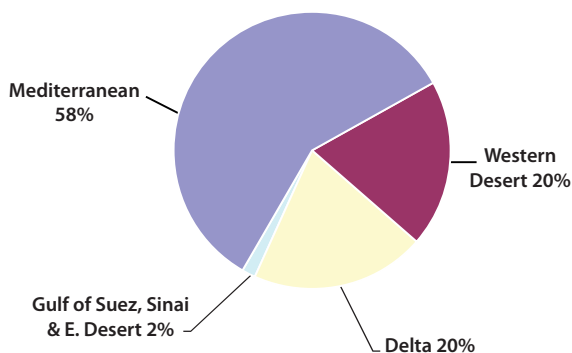


Figure 9: Quantities of gas produced in Egypt from reserves in its Mediterranean EEZ in 2018–2019<sup>40</sup>

<sup>38</sup> Hiba Zin, "Egypt's Transformation into a Regional Energy Hub", 2022.

<sup>39</sup> *Egyptian Natural Gas Holding Company, Sustainable Energy Leap, Annual Report 2018–2019*, EGAS (2019).

<sup>40</sup> *Ibid.*, p. 26.

For an impression of the full scope of Egypt's Mediterranean gas reserves, we shall present a list of production sites in Egypt's maritime domain in the Mediterranean Sea. But before outlining the key details of the active gas reserves in Egypt, we should note the historical fact that the first Egyptian maritime gas field in the Mediterranean was discovered in 1969 in the sea opposite Abu Qir.<sup>41</sup>

Since then, foreign energy companies have begun to be involved in the production of natural gas in Egypt, from both its underground and maritime reserves. The largest, oldest, and most dominant companies in this industry are British Petroleum (BP), the Italian company Eni, and the Dutch company Shell. Over the past two to three years, more energy companies have joined the Egyptian natural gas scene, including the U.S. energy giants Chevron and Exxonmobil, the French company Total, the Italian company Edison, the Greek company Energean, and the Emirati company Mubadala.

Spain is also involved in the natural gas liquefaction industry in Egypt, through the company Union Fenosa, founded in the early twenty-first century by a joint Egyptian-Spanish company called SEGAS, and in the context of the construction and operation of the Damietta liquefaction plant, which the Italian company Eni was also involved in running. The facility was inactive for around eight years, and under pressure from Eni was brought back online in 2021.<sup>42</sup>

### *The Alexandria and Nile Delta region*

**WND (West Nile Delta)** — a deep-sea gas reserve 60–80km (37–50 miles) north of Alexandria. The main contractor and production company is British Petroleum (BP).

**Northwest Abu Qir** — In late November 2022, it was announced that British Petroleum, which has been working in a successful partnership with Egypt for around sixty years, with a cumulative investment of over \$35 billion, was awarded two new gas exploration blocks northwest of the WND development, which has also been operated by BP for many years. These two new blocks cover an area of around 1,000km<sup>2</sup> (386 square miles) with water depths ranging between 600 and 1,600 meters.<sup>43</sup>

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<sup>41</sup> Website of the Egyptian Ministry of Petroleum and Mineral Reserves: "[Natural Gas](#)", Ministry of Petroleum & Mineral Resources, Retrieved December 2022.

<sup>42</sup> Eni is advancing talks between the partners of the Damietta plant to restart its activities: "[Eni: Talks resume on restarting Egypt's idled Damietta LNG facility](#)", *Energy Egypt*, October 11, 2020.

<sup>43</sup> "[BP Awarded Two Exploration Blocks in Egypt's Offshore Nile Delta](#)", *Energy Egypt*, November 28, 2022.

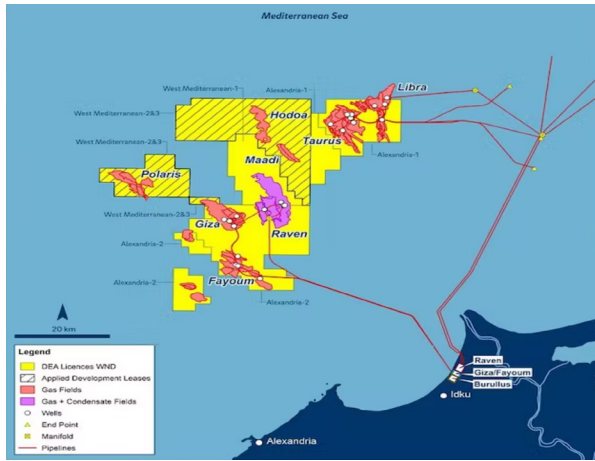


Figure 10: The West Nile Delta (WND) reserve north of Alexandria<sup>44</sup>

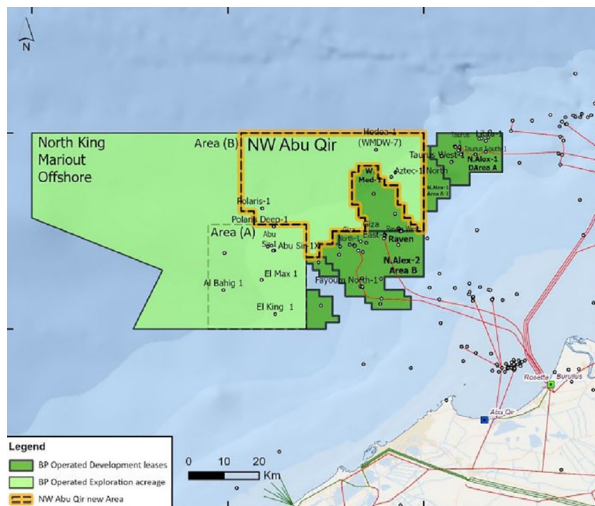


Figure 11: The new development in which BP was awarded exploration blocks northwest of Abu Qir: the light-green area surrounded by an orange line. The dark-green area is the WND development, mostly a BP concession.<sup>45</sup>

**Nooros** — a gas reserve in shallow waters north of the Delta. The development is known as the Great Nooros Area, adjacent to WND but closer to the shore. In early July 2020,

<sup>44</sup> Offshore Staff, "[BP brings two more gas fields onstream offshore northern Egypt](#)", *Offshore*, February 11, 2019.

<sup>45</sup> *Ibid.*

the Italian company Eni announced the discovery of a new well in the Nooros area some 11km (7 miles) offshore, at a depth of around 22 meters, with promising potential for the extraction of a layer of gas around 150 meters thick.

Zohr — the centerpiece — a huge reserve discovered in 2015 by the Italian company Eni. Extraction, at a daily rate of 2.3 billion cubic feet, began in July 2019. Eni is the operator of the block, albeit in a partnership with British Petroleum and the Emirati company Mubadala. Many researchers believe that this development marked a turning point in Egypt's status as a gas producer in Africa and the Mediterranean, of the sort that could become a regional energy hub. In any case, Zohr is considered one of the biggest gas fields in the world and the largest in the Mediterranean.<sup>46</sup>

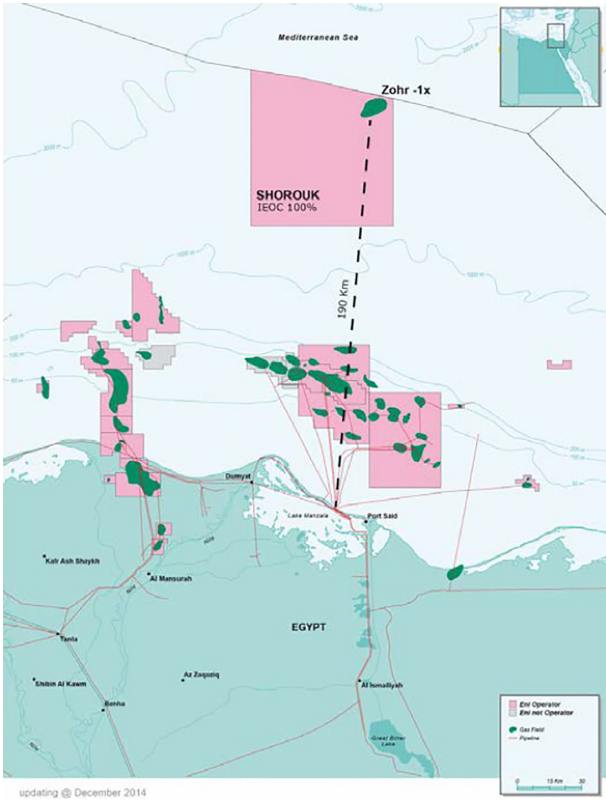


Figure 12: The Zohr gas field, 150km (93 miles) north of the shore, on the northern boundary of Egypt's exclusive economic zone<sup>47</sup>

46 "[Eni discovers a supergiant gas field in the Egyptian offshore, the largest ever found in the Mediterranean Sea](#)", *ENI.com*, August 30, 2015.  
47 "[Zohr Gas Field](#)", *Offshore Technology*, February 26 2021.



Sinai Peninsula, where the Italian company Edison had been awarded a concession in partnership with the Greek company Energean.<sup>50</sup>

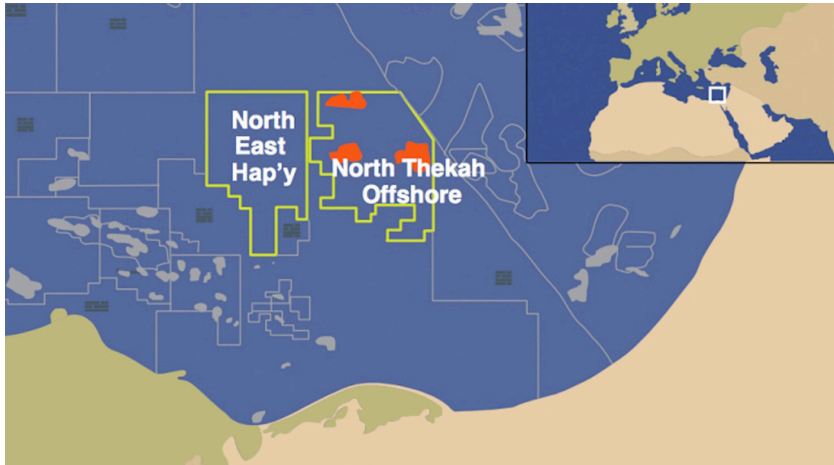


Figure 14: New sites opposite the northern shores of the Sinai, where Italian company Edison and Greek company Edison were recently awarded concessions<sup>51</sup>

**Thuraya**—a gas prospect north of El-Arish, very close to the Palestinian Authority's EEZ across from the Gaza Strip (Gaza Marine). The Italian energy company Eni currently holds a concession for this reserve, and in November 2022 it was announced that the company had begun drilling and was optimistic about finding similarly rich gas reserves to those previously discovered at Zohr.<sup>52</sup>

**Nargis**, another reserve off the coast of the northern Sinai in the eastern section of Egypt's EEZ, is a new prospect; its discovery by the U.S. company Chevron, in partnership with Italy's Eni, was announced in mid-December 2022.<sup>53</sup> Figure 15 depicts Chevron's drilling sites in Egypt's EEZ, mostly west of Alexandria, while the new prospect of Nargis, off the coast of the northern Sinai, is situated on the eastern edge of Egypt's EEZ, adjacent the western fringes of the Israeli and Palestinian EEZs.

<sup>50</sup> "[Edison successfully completes Ameet 1-X exploration well offshore Egypt](#)", *Energy Egypt*, June 2, 2020; North East Hap'y, *Energean*, June 2020.

<sup>51</sup> Edison successfully completes Ameet 1-X exploration well offshore Egypt, 2020.

<sup>52</sup> Eni's statement about the start of drilling operations north of el-Arish: Ed Reed, "[Eni Plunges into Thuraya work, Picking Up from Dana Gas](#)", *Energy Voice*, November 28, 2022.

<sup>53</sup> "[Chevron Hits a Motherlode in the Mediterranean](#)", *Africa Oil+Gas Report*, December 19, 2022; Reuters News Service "Egypt discovers large gas field in Mediterranean, minister says", *Cyprus Mail*, December 19, 2022.



Source: Chevron Corp.

Figure 15: The gas fields operated by Chevron in Egypt<sup>54</sup>

### *New exploration prospects in the western Herodotus Basin*

The Herodotus Basin lies off the Egyptian coast from the center of the Nile Delta in the east to the Libyan border in the west. In late 2019, a new tender was published in Egypt for gas exploration in eleven blocks, of which eight were in the western section of the Herodotus Basin (Figure 16).<sup>55</sup>

In July 2020, it was announced that foreign companies had been awarded concessions in several of the eight blocks included in the new tender in the Herodotus Basin. One of the successful firms was a new player in the region: the U.S. energy giant Chevron. Its neighboring blocks were awarded to Britain's BP, France's Total, and the Netherlands' Shell (Figure 17).<sup>56</sup>

<sup>54</sup> Jacob Dick, "[Chevron, Egypt Pondering Increased Natural Gas Exports](#)", *NGI, Natural Gas Intelligence*, June 27, 2022.

<sup>55</sup> Announcement by the Egyptian Ministry of Energy in October 2019 about the publication of a tender for eleven blocks on Egypt's western coast: "[EGAS upcoming Bid Round will include 11 Blocks in Egypt's West Mediterranean](#)", *Energy Egypt*, October 20, 2019.

<sup>56</sup> "[MEES: Egypt bags all five Supermajors with key West Mediterranean awards](#)", *Energy Egypt*, July 11, 2020.

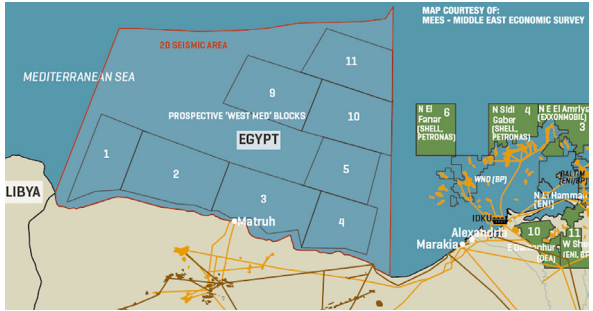


Figure 16: Distribution of the eight blocks in the Herodotus Basin included in the tender<sup>57</sup>

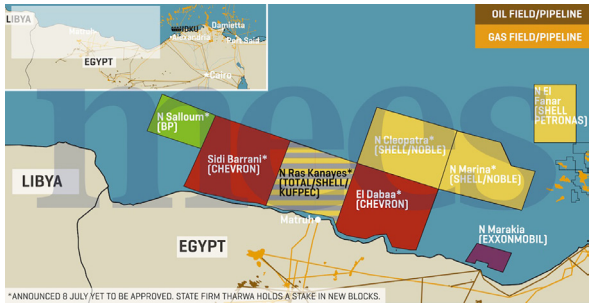


Figure 17: New concessions in the western Herodotus Basin<sup>58</sup>

### Conclusion

Egypt is an important and influential player in the Eastern Mediterranean, not least as a state possessing a significant share of abundant gas reserves in its exclusive economic zone, from the El-Arish area in the northern Sinai in the east to the area of El-Salloum on the Libyan border. Additionally, Egypt possesses relatively developed infrastructure, including gas liquefaction plants capable of producing over 12 million tons a year, and whose capacity is expected to grow with additional investment by major foreign gas firms. This liquefaction infrastructure gives Egypt a considerable advantage considering the present demand for LNG from a range of consumers around the world and especially in the European market.

<sup>57</sup> Announcement by the Egyptian Ministry of Energy about the publication of a tender for eight blocks in the Herodotus Basin, with concessions awarded for some of them. "[Egypt agrees with five majors on West Mediterranean exploration](#)", *Energy Egypt*, February 16, 2020.

<sup>58</sup> MEES, *Energy Egypt*, 2020. Note that Chevron's activities on Egypt's western shore is in addition to the activity announced in December 2022 in the Nargis prospect off the coast of the northern Sinai.



The recent discoveries from the middle of the 2010s, most notably the Zohr gas field, in the context of Egypt's plan for this industry and accelerated development efforts, have brought Egypt's capacity for natural gas production up to 7.2 billion cubic feet a day—a record pace for the gas industry in Egypt.

Egypt's known gas reserves have grown eightfold over the past few years, relative to its proven reserves in 2010-2014. According to the *Oil & Gas Journal*, as of January 2021, Egypt's gas reserves stand at 63 trillion cubic feet (Tcf),<sup>59</sup> and in my assessment, this number will surely rise with the discovery of new reserves in the Herodotus Basin adjacent to the Libyan border and in the northern Red Sea, after their development by the contractors who have been awarded new concessions over the past two years, and with the announcement of a new package of tenders in 2023.

In early 2023, a new tender is expected to be announced in Egypt for gas extraction at twelve blocks in the Western Desert and Mediterranean Sea. Bid offerings will be allowed to be submitted until the end of the second quarter of 2023.<sup>60</sup> When companies are awarded these new blocks, this will come on top of the enormous existing gas reserves in Egypt's EEZ in the Mediterranean Sea.

The past three years have seen diplomatic and political tensions and conflict over questions of control and ownership in the exclusive economic zones of the Eastern Mediterranean. Nevertheless, it is worth noting that the gas and energy market, influenced mainly by economic profit-and-loss considerations, is not swayed by diplomatic or ideological considerations. For evidence, consider that tensions between states have not translated into a lack of trade between them, even in the gas market, as we can see from commerce between Turkey and Egypt, or even Israel's supply of gas through Egypt to Jordan and from there to Syria and Lebanon.

In the introduction to this article, we noted the Egyptian finance minister's aspiration, as he expressed this past summer, to reach monthly natural gas exports of \$1 billion. This means that Egypt will strive to achieve the following targets:

- Increasing gas extraction from its wells, beyond its original plans for the coming years;
- Reducing and streamlining domestic consumption of natural gas in order to make more available for export;
- Speeding up exploration and extraction from reserves for which new concessions have been awarded;

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<sup>59</sup> [Country Analysis Executive Summary: Egypt](#), EIA, US. Energy Information Administration, April 4, 2022, p. 6.

<sup>60</sup> "[Egypt Will Offer 12 Blocks for Gas Exploration](#)", *Africa Oil+Gas Report*, December 19, 2022.

- Striving to buy additional quantities of natural gas from Israel, Greece, and Cyprus, with the aim of selling it as LNG at a higher price.

Egypt's EEZ in the Eastern Mediterranean and soon also, it appears, its EEZ in the Red Sea provide the country, therefore, with a substantial economic anchor and an extremely significant source of revenues for the Egyptian treasury, alongside Egypt's revenue stream from the Suez Canal.

We may, to a large extent, point to Egypt's maritime resources and its need to protect them as a critical factor behind the expansion of the Egyptian navy with advanced ships and the accelerated development of its ports and harbors (including for military purposes) along Egypt's shores.

The development of Egypt's ports and harbors is directly related, in part, to the nation's gas infrastructure and shipping industry (which is also growing in Egypt, in line with an organized masterplan); it is also related, in another part, to the deployment of Egyptian military vessels at its new or renovated naval bases, such as the 3 July Naval Base (Gargoub) adjacent to the border with Libya, as well as the Abu Qir and Port Fuad naval bases, all in the Mediterranean. Meanwhile, the new Berenice Naval Base in the Red Sea near the border with Sudan is intended to host a deployment of naval vessels to defend Egypt's EEZ and any gas reserves discovered in the Red Sea in the near future (here too, as we have seen, Egypt has announced a bidding process and awarded concessions in three blocks).<sup>61</sup>

As for Israel, Egypt is a neighboring state with which Israel has a peace treaty that is over forty years strong. Since Egypt is an influential player in the energy sector in the Eastern Mediterranean, in the interests of good neighborly relations and mutual, shared, and complementary economic profitability, it is important that decision-makers in the State of Israel be conscious of the proven potential of Egypt's exclusive economic zones and gas industry.

The fact that in the last two years, two major energy firms (the U.S.-based Chevron and Greece's Energean) have started working both with Egypt and with Israel signals the potential for deepening ties between the two states in the energy sector in general and in the exploitation of gas reserves in their EEZs in particular.

It would therefore be right and proper to see Egypt as an important link in a friendly network across the Eastern Mediterranean (including Greece, Cyprus, Israel, and Egypt,

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<sup>61</sup> Guetta, "Exclusive Economic Zones (EEZ) in the Red Sea Region: Risks and Opportunities"; Vardi and Guetta, "Interview with Vice Admiral Ahmed Khaled."

and maybe in the future even Lebanon, to the extent that it is not controlled by hostile forces). Even Turkey, to the extent that it reaches understandings under international auspices in the context of its disputes with Greece and Cyprus, may yet join this web of states producing and exporting gas with the aim of addressing global demand in the present era.

As for Israeli-Egyptian bilateral relations, Egypt's EEZ serves as a platform for cooperation between the two nations, not only on matters of trade and commerce but also on security and action against similar and shared threats. The more cooperation in these fields, the greater the contribution to the continued maintenance and reinforcement of the Israel-Egypt Peace Treaty.

As for economic and commercial cooperation between Israel and Egypt, especially in the context of rising demand for natural gas as a result of the Russo-Ukrainian War, it is worth noting that in June 2022, Israel's then-energy minister, Karine Elharrar, signed a trilateral MOU in Cairo (between Israel, Egypt, and the European Union), which provided for Israeli gas to be transported to Egyptian liquefaction plants and from there, to Europe. The parties determined the division of Israeli gas between Egypt and the European Union. Another issue that was sorted out with the new MOU was the decision that Israel would use Egypt's liquefaction plants for the next few years as a means of transporting gas to Europe. The MOU stated that its signatories would work together to facilitate a dependable supply of natural gas to EU member states from Egypt, Israel, and other sources by means of the existing natural gas liquefaction facilities in Egypt.<sup>62</sup>

It is almost certain that Egypt and Israel's gas export surpluses will only partially meet European demand, but these new understandings hint at things to come—as the reexamination of the economic and practical feasibility of the EastMed gas pipeline project would suggest.

### *Acknowledgments*

Thank you to Dr. Elai Rettig, a lecturer at the Department of Political Studies at Bar-Ilan University and an expert on energy issues, for his comments and professional insights. Thank you also to Mr. Baruch Pertzman, formerly head of the hydrography division in the Israeli Navy and former senior manager at the Survey of Israel, for his wise advice and contributions in providing some of the visual aids included in this article.

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<sup>62</sup> Danny Zaken, "[Now it's official: Israel, EU and Egypt signed gas export deal](#)", *Globes*, June 15, 2022 [Hebrew].



## Section 5: Maritime History

The two articles in this section discuss maritime history. October 2023 will mark fifty years since the Yom Kippur War, and the first article discusses the intelligence warning that the Israeli Navy presented in the days preceding the war, which was rejected by the IDF Intelligence Directorate. It explains what the Israeli Navy's intelligence identified and the severe assessment it presented to the IDF Intelligence Directorate, discussing the relationship and balance between the different branches of Israeli military intelligence. The second article discusses more distant history: the defeat of Napoleon Bonaparte's attempt to conquer Acre in 1801, drawing comparisons between his position and that of modern Israel. The article explains how the Royal Navy defeated Napoleon by virtue of its absolute control of the East Mediterranean and how it helped the Ottoman Empire defend Acre against Napoleon by blocking any possible maritime supply routes to his ground forces and capturing his ships. Israel must similarly ensure its own maritime superiority in order to receive the supplies it needs in times of peace and war.



## The Warning that Came from the Sea: Naval Intelligence in the Yom Kippur War

*Ehud Golan*<sup>1</sup>

In the nearly fifty years since the Yom Kippur War, there have been numerous studies about how Israeli intelligence was caught by surprise and failed. The overwhelming majority of them have focused, quite rightly, on the IDF Intelligence Directorate (AMAN), the largest organization in the Israeli intelligence community, which is responsible for issuing warnings about impending wars and the national intelligence assessment.<sup>2</sup> In later years, following the exposure of the identity of Mossad's high-ranking source, Ashraf Marwan, studies, memoirs, and media reports began to focus on the role of Mossad in the run-up to the war.<sup>3</sup>

In fact, however, it was a relatively small intelligence organization, the intelligence department of the Israeli Navy, that assessed—contrary to the position of the IDF Intelligence Directorate—that war was imminent. The late Col. Avraham (Rami) Lunz, who commanded the Israeli Navy's intelligence department at the time, claimed that on September 30, 1973, six days before the outbreak of the war, naval intelligence concluded that war was on its way. In his comprehensive study of Israeli intelligence and the surprise of the Yom Kippur War, Uri Bar-Joseph briefly mentioned Lunz as an exceptional case of independent thinking within the intelligence community. Lunz's deputy, Uri Meretz, wrote a short paper subtitled "The Consensus that Silenced the Alarm" and presented a nuanced and less unequivocal picture of the naval intelligence's assessment/warning and how it was received.<sup>4</sup> To date, no comprehensive academic study, however, has yet been written on the subject.

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<sup>1</sup> This article is part of a post-doctorate research about the Israeli Navy in the Yom Kippur war written for the Maritime Policy and Strategy Research Center, University of Haifa. The author would like to thank Prof. Shaul Chorev, Dr. Ziv Rubinovitz and Naval Captain (Res.) Shlomo Guetta for their comments and to Nava Reich and the staff of the Library of the Center for Intelligence Heritage for their assistance.

<sup>2</sup> Aryeh Shalev, *Israel's Intelligence Assessment before the Yom Kippur War* (Brighton: Sussex Academic Press, 2008), 1–5; Shlomo Gazit, *Between Warning and Surprise: On Shaping National Intelligence Assessment in Israel* (Tel Aviv: Jaffa Center for Strategic Studies, 2003), 12–23, 28–29 [Hebrew].

<sup>3</sup> Uri Bar-Joseph, *The Watchman Fell Asleep* (Albany: State University of New York Press, 2005), pp. 1–7; Uri Bar-Joseph, *The Angel: The Egyptian Spy Who Saved Israel* (New York: HarperCollins, 2016); Ronen Bergman and Gil Meltzer, "[Who are you, Agent Babel?](#)" *ynet*, May 5, 2005 [Hebrew].

<sup>4</sup> Daniella Ran, "Fifth Interview with Rami Lunz", *Israeli Navy Heritage Documentation Project*, June 22, 1995 [Hebrew]; Yossi Omessi and Itzik Azar, "I concluded it was war six days before it broke

This study seeks to fill the gap and examine how it was possible that of all Israel's intelligence entities, it was the naval intelligence branch that read the writing on the wall and formed an independent assessment that war was coming. How was this assessment received by the IDF Intelligence Directorate and the Israeli Navy? How, if at all, did this assessment influence the Israeli Navy's readiness for war?

By analyzing testimonies and using a range of other sources, we can paint a more detailed picture of how Israeli naval intelligence formed its assessment that war was imminent; additionally, we can also draw methodological and theoretical lessons from this, which may also be relevant for other cases.

## Naval intelligence

Is naval intelligence defined by unique characteristics or is it simply a subsector of intelligence? And from an organizational perspective, is it simply the branch of intelligence that focuses on the maritime domain? A U.S. Navy study in 1994 defined and characterized naval intelligence from an American perspective, focusing on its role in serving the U.S. Navy and supporting its naval and joint operations, but it specified that because of its international reach, naval intelligence is important in times of peace. Navy vessels, ships, and submarines regularly carry materiel, radars, sonar, and more, which also serve for reconnaissance and can carry special intelligence-gathering technologies.<sup>5</sup>

In times of war, the more offensive the enemy's fleet, the greater the chance of naval intelligence picking up on clues of war and sounding the alarm, whereas while the enemy fleet is geared toward defense, it becomes less likely that opposing forces will be able to identify clear signs of war.

The naval intelligence branch is part of the state's intelligence community. In maritime powers such as the United States and Britain, which operate all over the world with navies that are often the first military branch to reach crises and warzones, naval intelligence

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out", *Between the Waves*, 2003, 20–26 [Hebrew]; Rami Lunz, "The Yom Kippur War in the Maritime Domain", in Haggai Golan and Shaul Shai (eds.), *Studies in the Yom Kippur War* (Tel Aviv: Ma'archot, 2003), 390 [Hebrew]; Brig. Gen. Rami Lunz, in Benny Michaelson (ed.), *The Yom Kippur War: Seminar in Issues in Israel's Security 1998* (Reut: A. Meltzer, 2013), 475–476 [Hebrew]; Bar-Joseph, *The Watchman Fell Asleep*, 99–100 ; Yoav Gelber, *Rahav: Israel's Road to the Yom Kippur War, 1970–1973* (Modi'in: Kinneret Zemora Bitan, 2021), 534–535 [Hebrew]; Shay Levy, "The Israeli Navy in the Yom Kippur War, the Untold Story", *Pazam*, October 11, 2016 [Hebrew]; Uriel Meretz, "Naval intelligence in the Yom Kippur War: the consensus that silenced the alarm", *Mabat Malam* 67 (November 2013) [Hebrew].

<sup>5</sup> [Naval Doctrine Publication 2: Naval Intelligence](#), Department of the Navy Office of The Chief of Naval Operations (September 30, 1994): 3–11.



plays a critical role. During the Cold War, in light of the importance of submarines in nuclear weapons systems, naval intelligence played a strategic role. Both the United States and USSR deployed their navies on a massive scale to gather intelligence on each other.<sup>6</sup>

The situation is different in countries like Israel that are not maritime powers and have waged mainly land wars, and whose navies are regarded as secondary branches of the military, of lesser importance than ground and air forces.

### The Naval Intelligence Division: historical background

Israel's naval intelligence was established in April 1948, on the eve of the declaration of independence, and in May 1949 the naval intelligence branch was officially formed.<sup>7</sup> Until 1972, it was based at the Israeli Navy's headquarters at Stella Maris in Haifa. The Israeli Navy's HQ was subsequently relocated, along with naval intelligence, to the General Staff's HQ in Tel Aviv. Israeli naval intelligence has two roles: one, as the Israeli Navy's chief intelligence body and the second, as the IDF Intelligence Directorate's chief naval intelligence organization. It is answerable in the chain of command to the commander of the Israeli Navy and professionally to the head of the IDF Intelligence Directorate. Israel's naval intelligence started out as a small agency manned by inexperienced officers; gradually, over the years, it evolved into a professional and established body, but it remained a relatively small intelligence agency, certainly in comparison with the Intelligence Directorate.<sup>8</sup> The Naval Intelligence Directorate serves two simultaneous functions: it provides general intelligence to the Navy and naval intelligence to the broader intelligence community and the State of Israel (Fig 1.)

<sup>6</sup> For background on naval intelligence around the world, see: Marcus Fualkner, "Naval Intelligence and Innovation: A Historical Perspective", in Alessio Patalano and James A. Russell (eds.), *Maritime Strategy and Naval Innovation* (Annapolis, MD: Naval Institute Press, 2021): 90–104.

<sup>7</sup> In this chapter, I will use the terms "naval intelligence" and "the naval intelligence branch" to refer to the period of the Yom Kippur War. The IDF Intelligence Division used the term "naval intelligence" to refer to the naval intelligence branch. Nowadays the organization is known as the Naval Intelligence Division.

<sup>8</sup> For more on the history of Israeli naval intelligence, see: Avi Uval, "The Bond of Silence", *Between the Waves* 176 (December 1988), 21–25 [Hebrew]; Daniella Ran, "Interview with Reuven Ashkenazi", *Israeli Navy Heritage Documentation Project*, December 25, 1998, 7–8 [Hebrew]; Ephraim Lapid, *Clandestine Warriors in Israeli Intelligence: An Inside Look* (Rishon LeZion: Miskal and Hemed, 2017), 120–124 [Hebrew]; Aryeh Oren and Shlomo Guetta, "The Sea of Information in IDF Naval Intelligence", in Amos Gilboa and Ephraim Lapid (eds.), *Israel's Silent Defender: An Inside Look at Sixty Years of Israeli Intelligence* (Jerusalem: Gefen Publishing House, 2012), 267–274.

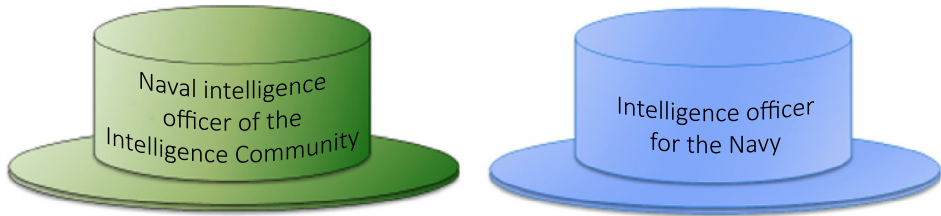


Fig. 1: Illustration of the double role of Israeli naval intelligence: it provides general intelligence to the Navy and naval intelligence to the broader intelligence community.

Courtesy of Shlomo Guetta

## The Six-Day War

Lt. Col. Reuven Ashkenazi was appointed the commander of Israeli naval intelligence in 1964. According to Ashkenazi, on the eve of the 1967 Six-Day War, Israel's naval intelligence was the first to detect that the Egyptian Navy was ready for war and issued an assessment to this effect to the Intelligence Directorate. Brig. Gen. (res.) Amos Gilboa wrote about this in his biography of the commander of the Intelligence Directorate, Aharon Yariv: "On the morning of May 30, Reuven Ashkenazi, the head of naval intelligence, told Aharon Yariv: sir, we have a paper on the way concluding that the Egyptian Navy is ready for war; whether it will go to war, that's not for me to say, but for you". According to Gilboa, Yariv remembered this phone call on the morning of Tuesday, May 30 to Ashkenazi's credit.<sup>9</sup> During the war, the Israeli Navy missed opportunities, did not execute operations it had planned, and experienced several failures. According to Ashkenazi, part of the reason that the Israeli Navy disappointed in the war was its failure to act on its excellent intelligence.<sup>10</sup>

A position paper that Ashkenazi presented following the Six-Day War served as a blueprint for the development of naval intelligence, boosting its manpower, assigning intelligence officers to a variety of units, establishing a sigint unit including tactical intelligence teams that joined voyages on warships and submarines and listened to radio communications (this would eventually become Unit 663), and developing the field of technical intelligence and analysis of enemy fighting techniques.<sup>11</sup>

<sup>9</sup> Ran, "Interview with Reuven Ashkenazi", 8 [Hebrew]; Amos Gilboa, *Mr. Intelligence – Ahrale Yariv* (Tel Aviv: Miskal and Hemed, 2013), 283 [Hebrew].

<sup>10</sup> Ran, "Interview with Reuven Ashkenazi", 4–5 [Hebrew]; Arie Rona and Cochavi Azran, "The Navy during the war", in Avraham Zohar and Pesach Malovany (eds.), *The Six-Day War: 50 Years Later* (Institute for the Study of Israel's Wars, 2018), 527–570 [Hebrew].

<sup>11</sup> Ran, "Interview with Reuven Ashkenazi", *ibid.* [Hebrew]. For more on the sigint unit: Amir Bohbot, "From a small and secret cell thousands of kilometers from Israel: the secret unit of the Israeli Navy revealed for the first time", *Walla!*, April 23, 2022 [Hebrew].

According to Gilboa, soon after the war, the head of the IDF Intelligence Directorate, Aharon Yariv, met with Israeli Navy Commander Shlomo Erell and Ashkenazi. "On the agenda was the allocation of more resources to the Navy for naval intelligence and strengthening the link between naval intelligence and Unit 848 [now Unit 8200]. It was agreed that the naval intelligence branch, like air force intelligence, would be attached to operations 24 hours a day and would build itself accordingly, with the required organization and equipment; thorough research would be conducted into the Egyptian Navy and its available weapons, and into Russian fleet in the Mediterranean Sea".<sup>12</sup>

### *The sinking of INS Eilat*

On October 21, 1967, the INS *Eilat* was drowned off the coast of Port Said as the result of a Styx missile attack from an Egyptian Komar missile boat (Fig. 2). Forty-seven crewmen were killed. The IDF's commission of inquiry found that on October 21, Unit 848 had received two pieces of information that warned that the Egyptians were about to do something. The unit was unaware of the INS *Eilat's* voyage and location opposite Port Said. According to the duty officer in Unit 848, a telephone report was transmitted to the duty officer at the naval intelligence branch at Navy HQ in Haifa. This naval officer subsequently denied having received such a report. The commission of inquiry did not settle the conflict between these two accounts. Its report concluded that the fundamental failure lay with the General Staff and the Israeli Navy's treatment of the warship's sorties off the coast of the Sinai as routine patrols, not combat activities. It also exposed the coordination problems between the Israeli Navy and the General Staff, which had already arisen before, and this contributed to the Navy HQ's relocation to the General Staff's base in Tel Aviv in 1972.<sup>13</sup>

In 1969, the Israeli Navy's intelligence branch, officially known as Sea Branch/4, became an intelligence department, containing two branches—a reconnaissance branch and a research branch—in addition to a field security section and a technical services section. The head of this intelligence department was Reuven Ashkenazi, who had headed naval intelligence since 1964 and was now promoted to the rank of Navy Captain. The naval intelligence branch had been subordinate to the operations department and gradually became an almost independent department subordinate to the commander of the Israeli Navy. In 1971, Navy Captain Avraham (Rami) Lunz, the former head of the reconnaissance

<sup>12</sup> Uval, 23 [Hebrew]; Ran, "Interview with Reuven Ashkenazi", *ibid.* [Hebrew]; Gilboa, *Mr. Intelligence*, 348 [Hebrew].

<sup>13</sup> Gilboa, *Mr. Intelligence*, 347–349 [Hebrew]; Shlomo Erell, *Before You, the Sea* (Tel Aviv: Ministry of Defense, 1998), 291–297 [Hebrew]; Yossi Melman, "The last secret of INS Eilat", *Haaretz*, 8 March 2005 [Hebrew].

branch in Israeli naval intelligence, was appointed the head of the Israeli Navy's intelligence department. In the summer of 1973, its research branch was split into two: a naval research branch, which dealt with Arab states' navies, and a target research branch, which investigated maritime infrastructure on enemy shores. Navy Captain Uri Meretz, who had previously served as the head of the research branch, was appointed a research aide to the head of the intelligence department, with responsibility for both research branches, as well as the technical research section and the operations section (Fig. 3).<sup>14</sup>

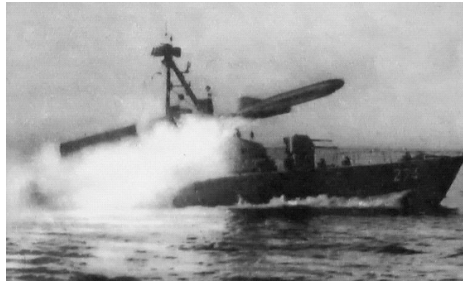


Fig. 2: The Komar missile boat launching a Styx missile (source: Naval Intelligence Directorate, Wikipedia)



Fig. 3: Israeli Navy Commander Avraham Botzer and Department head Rami Lunz with naval intelligence officers, summer of 1972 (source: Naval Intelligence Directorate, Wikipedia)

<sup>14</sup> Ran, Ashkenazi, *ibid.* [Hebrew]; Ran, Lunz [Hebrew]; [Naval Intelligence Directorate](#), Wikipedia [Hebrew].

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## Intelligence about the maritime domain ahead of the Yom Kippur War

### *Reconnaissance*

Most of the information about the maritime domain came from Unit 848's interceptions, with the involvement of a maritime network intelligence section manned by naval intelligence officers, trained in tracking Egyptian naval communications. The Navy also made use of visual intelligence and information from foreign agencies, including Italian intelligence, with which Israeli naval intelligence had good relations, and the British and American intelligence services.<sup>15</sup> According to Lunz, he had received some paraphrased snippets from Mossad top agents about the maritime domain.<sup>16</sup> Israeli naval intelligence's main focus was the Egyptian Navy, seen as its primary enemy. The Syrian Navy was a smaller, a secondary threat; reconnaissance coverage of its activities was deficient, and information about it was sparse.<sup>17</sup>

### *Research*

According to Meretz, Israeli naval intelligence did not have good information about the enemy's intentions, and its research focused on two areas: 1) basic intelligence, technical intelligence, and analysis of enemy navies' routine activity; 2) warning intelligence, identifying signs of impending war.

Israeli naval intelligence kept the Egyptian Navy, along with its activities and exercises, under constant monitoring. It made inferences from Soviet military doctrines and analyzed the technical data about Egypt's ships and weapon systems. This monitoring and research contributed greatly to the Israeli Navy's force buildup and especially to its development of electronic defenses against the Styx missile, led by the electrical engineering officer Navy Captain Herut Tsemach. It also contributed to Israel's understanding of Egyptian military doctrines, which allowed it to perform exercises at sea and at the Navy's tactical training facility, and to build a suitable combat doctrine for Israeli missile boats to stand up to the Egyptian fleet. Israel's naval intelligence also monitored the Soviet fleet operating in the Mediterranean and anchored at Egyptian and Syrian bases.<sup>18</sup>

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<sup>15</sup> Meretz, "Naval intelligence in the Yom Kippur War", 48 [Hebrew]; interview with Lt. Col. (res.) Uri Meretz, Ramat Hasharon, July 13, 2022 [Hebrew]; Lunz also addressed Unit 848 interceptions as a primary source. See: [Col. Rami Lunz at the Agranat Commission](#), December 18, 1973, IDF Archive, 77 (henceforth: Lunz's testimony) [Hebrew].

<sup>16</sup> Lunz's testimony.

<sup>17</sup> Interview with Lt. Col. (res.) Gil Shapira, Rosh Ha'Ayin, September 21, 2022.

<sup>18</sup> Meretz, "Intelligence", *ibid* [Hebrew]; Amos Gilboa, "Naval intelligence warned: there will be war. Nobody listened", *Maariv*, September 29, 1998 [Hebrew]; interview with Meretz, *ibid*.

### *"Blue and White" preparedness*

In April 1973, Israel received reports about Egyptian intentions to launch a war in May. Consequently, the IDF took steps to improve its readiness for war under the codename "Blue and White", until the state of high alert was cancelled in August. On April 11, Ashraf Marwan (Nasser's brother-in-law and a confidant of Egyptian President Anwar Sadat), who had been a Mossad agent since 1969, sent Israel a detailed report stating that Egypt intended to open fire in mid-May. According to Bar-Joseph, "Marwan also communicated that the Egyptian Navy intended to impose a maritime blockade on the Bab el-Mandeb Straits by laying mines there and positioning two destroyers to prevent any passage of ships carrying Israeli goods". Former Mossad director Shabtai Shavit, who headed Mossad's operations department before the war, spoke in a lecture in 2013 about the large amounts of information that Mossad provided before the war and noted in particular Ashraf Marwan's report about "blockading the Bab el-Mandeb Straits and mining the entrance to the Eilat Gulf—immediately with the commencement of hostilities".<sup>19</sup>

In reality, during the war, the Egyptians mined the Straits of Jubal, which led to the sinking of the Siris tanker and surprised Israeli naval intelligence.<sup>20</sup> In his testimony before the Agranat Commission, the then-commander of the IDF Intelligence Directorate, Maj. Gen. Eli Zeira, addressed the information about the blockade of the Bab el-Mandeb Straits as a possible scenario mentioned in a document circulated by military intelligence on April 16, 1973, ahead of a situation assessment at the Operations Directorate, which was eventually executed in the course of the war in October. IDF Chief of Staff David (Dado) Elazar indeed addressed the possibility of a blockade of the Bab el-Mandeb Straits when he presented the war plans to Prime Minister Golda Meir on May 9 and noted that the Israeli Air Force was capable of preventing such a blockade.<sup>21</sup> Elhanan Oren wrote in his

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<sup>19</sup> Uri Bar-Joseph, *The Angel*, 206–208 [Hebrew]. The reference to Egypt's mining of the Bab el-Mandeb Straits is apparently an error, of unknown provenance. Shabtai Shavit, "When one is exposed to a critical mass of intelligence that Mossad provided the Intelligence Directorate before the outbreak of the war, does anyone still need research and assessment?", lecture before a senior forum of Mossad officers, June 10, 2013, cited in Effi Meltzer (ed.), *Intelligence in the Yom Kippur War—40 Years Later* (Ramat Hasharon: Israel Intelligence Heritage and Commemoration Center, 2013), 88–89 [Hebrew]. Quoted also in Shavit's book: Shabtai Shavit, *The Director of Mossad* (Rishon LeZion: Yediot Books, 2018), 267 [Hebrew].

<sup>20</sup> For more on the mining, see: Shlomo Guetta, "The Egyptian Sea Mining Surprise during the Yom Kippur War (October War 1973)", in Shaul Chorev and Udi Gonen (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2021), 228–242.

<sup>21</sup> "[Testimony of the head of the IDF Intelligence Division, Maj. Gen. Eli Zeira, at the Agranat Commission](#)", sessions 17, 18, 19, December 12, 1973, IDF Archive, 91 [Hebrew]; Chief of Staff

book *The History of the Yom Kippur War*, based on research conducted under the IDF History Department:

According to an intelligence assessment from April 1973, around one third of the Egyptian Navy's vessels were usually undergoing maintenance, but in advance of a premeditated war, it was reasonable to expect that they would improve their seaworthiness and reach up to eight submarines and ten missile boats. Israel predicted attempts by the two navies [the Egyptian and the Syrian] to attack shipping lanes to Israel by blockading and striking ships, bombarding the coast, and trying to land Egyptian forces (the Egyptian fleet in the Mediterranean had ten landing crafts, with a total capacity of forty tanks).<sup>22</sup>

In April and May, the Israeli military saw no concrete signs of war preparations, and as the Intelligence Directorate predicted, no war broke out.<sup>23</sup>

### *The IDF Intelligence Directorate and the naval intelligence department: unequal partners*

According to Gilboa, "the Israeli Navy's role in the IDF's overall operations was relatively small, and its status was low, but Aharon Yariv [the head of the Intelligence Directorate in 1964–1972—E.G.] knew to treat naval intelligence officers with respect and listen to them".<sup>24</sup> The commander of the Intelligence Directorate, Eli Zeira, claimed in his testimony before the Agranat Commission that he was responsible for research in the Navy and Air Force's intelligence departments.<sup>25</sup> In its annual intelligence assessment, the Intelligence Directorate presented an overall picture to the Chief of Staff, while naval and air force intelligence addressed the enemy in their respective maritime and aerial domains.<sup>26</sup> As for the process of forming this assessment, Brig. Gen. Aryeh Shalev, the head of the Intelligence Directorate's research department, argued that these assessments were drawn up in his department by pitting different opinions against each other and forming an assessment in conclusion. He claimed that the research department conducted open and democratic deliberations with the participation of senior and junior officers and a

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David Elazar's remarks quoted by Israel Tal and Yair Tal, *Israel Tal: Chapters from the Yom Kippur War* (Rishon LeZion: Miskal and Hemed, 2019), 83–85 [Hebrew].

<sup>22</sup> Elhanan Oren, *The History of the Yom Kippur War* (Tel Aviv: IDF History Department, 2013), 40 [Hebrew].

<sup>23</sup> Bar-Joseph, *The Watchman Fell Asleep*, 66–78.

<sup>24</sup> Gilboa, *Mr. Intelligence*, 239–241, 250 [Hebrew]; for more on the nature of the Intelligence Directorate's work see also: Ran, "Interview with Reuven Ashkenazi", 7–8 [Hebrew]

<sup>25</sup> "[Testimony of the head of the IDF Intelligence Division, Maj. Gen. Eli Zeira, at the Agranat Commission](#)", session 1, November 27, 1973, IDF Archive, 7 [Hebrew].

<sup>26</sup> Shalev, *Israel's Intelligence Assessment*, 209.

consensus was gradually formed. According to Shalev, no stenographic records were taken in the research department's assessment meetings. Aerial and naval intelligence officers participated in the research department's deliberations, and Shalev claimed that this created a degree of pluralism. Shalev noted the tight and important integration with the intelligence departments of the Navy and the Air Force. In his account, this became easier with naval intelligence after it relocated from Haifa to Tel Aviv in 1972. Naval intelligence wrote, or contributed to the writing of, Intelligence Directorate assessments about the maritime domain. Uri Meretz, who headed the naval intelligence research, also noted these positive relations and cooperation between naval intelligence and the IDF Intelligence Directorate.<sup>27</sup>

### Indications before the outbreak of the war: September–October 1973

An Israeli naval intelligence report published after the Yom Kippur War concluded that "from the latter half of September, the Egyptian Navy was making preparations to launch a war. These preparations had 'cover stories,' such as: 1) preparations for a multipronged tactical drill to be held by all branches of the Egyptian military between October 1–7; 2) certain preparations were linked to voyages by naval units from the Red Sea to Pakistan". The Israeli Navy detected the following preparations: changes in the state of readiness of military vessels; the arrival of special units to the Red Sea on October 2; naval preparations at foreign ports; work to get ships ready; a call-up of reserves starting on September 24; the mobilization of fishing boats for use by the navy; starting on September 25, an increase in the alert level for Egyptian naval units; on October 1, the declaration of the highest state of alert; and preparations for submarine voyages for renovation work in Pakistan.<sup>28</sup> According to this report: "Very little is known to us about the activities of the Syrian Navy and its preparations in the lead-up to the war, or about its deployment at the outbreak of hostilities".<sup>29</sup>

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<sup>27</sup> Shalev, *Israel's Intelligence Assessment* 9–11, 209–210, 33–34, 255, 292–297 [Hebrew]; for more on how the assessment was formed, see "[Testimony of the head of the research department, Brig. Gen. Aryeh Shalev, at the Agranat Commission](#)", session 22, December 16, 1973, IDF Archive, 1–6 [Hebrew]; for more on the cooperation with naval intelligence: *ibid.*, 31, 53–55, 63 [Hebrew]; Shalev's testimony, session 114, December 16, 1973 [Hebrew]; interview with Meretz, *ibid.*

<sup>28</sup> Israeli Navy HQ, Intelligence Department, Research Branch, "[Activities of Arab and superpower navies in the Yom Kippur War](#)", 1–2, XL–6–857, January 1974 [Hebrew]; see also Navy Captain (res.) Shlomo Guetta, "Unusual activity (including comms), final preparations and signs in the Egyptian Navy ahead of the Yom Kippur War", summary for research purposes [unpublished], October 8, 2022 [Hebrew].

<sup>29</sup> "Activities of Arab and superpower navies in the Yom Kippur War", 4 [Hebrew].



According to Gil Shapira, the IDF Lieutenant Commander who headed the Arab Navies section at naval intelligence before the war, he identified many signs of impending war over the course of September, including the transportation of anti-divers nets, naval mines, and a torpedo on trucks from Alexandria to the Safaga Naval Base on the Red Sea. Shapira was unable to convince his direct commander of the threat of war, so he bypassed him and took these alerts straight to the head of naval intelligence, Captain Lunz, and also presented him with a report about an officer on leave who was urgently summoned to his ship for what was supposedly a prearranged voyage.<sup>30</sup>

Lunz said that in a meeting on September 30 with the Navy's intelligence officers, information on the Egyptian Navy's activities was presented, and they reached the conclusion: "It's war". Lunz proceeded to a meeting of the Navy's top officers, chaired by the commander of the Israeli Navy, Maj. Gen. Benny Telem, where he presented the assessment about a looming war. Lunz's deputy, Meretz, went to another meeting at the same time with the head of the Intelligence Directorate, Maj. Gen. Zeira. Navy Commander Benny Telem confirmed that the head of naval intelligence, Lunz, had given him a summary of the assessment that the Egyptian Navy was beginning a massive exercise but added that the fleet could easily shift onto a war footing.<sup>31</sup>

An article by Unit 8200's heritage department about the unit's contribution to the intelligence picture on the eve of the Yom Kippur War states that the Egyptian Navy and Air Force changed their readiness levels, opened command centers, prepared ships and planes for use, appropriated fishing boats in the Red Sea, sent liaison officers to the military's shared command posts, and cleared Soviet vessels from the Port of Alexandria. According to the article, the two intelligence organizations—Israeli naval intelligence and a unit within the Southern Command's intelligence department, responsible for monitoring and investigating Egyptian military activities—produced a different intelligence picture from the Intelligence Directorate, based on information from Unit 8200. But the chief intelligence officer of the Southern Command, Lt. Col. David Gdalya, accepted the Intelligence Directorate's assessment that this was just an exercise and prevented the report listing the signs of imminent war prepared by his subordinate, Lt. Binyamin Siman Tov, from being forwarded on.<sup>32</sup>

<sup>30</sup> Interview with Gil Shapira, Rosh Ha'Ayin, September 21, 2022.

<sup>31</sup> Ran, "Fifth Interview with Rami Lunz" [Hebrew]; "[Testimony of Maj. Gen. Binyamin Telem, commander of the Navy, at the Agranat Commission](#)", session 17, December 26, 1973, IDF Archive, [Hebrew].

<sup>32</sup> Unit 8200 Heritage Department, "Unit 8200 and its contribution to the intelligence picture on the eve of the 1973 Yom Kippur War", *Mabat Malam* 90 (November 2021), 25–27 [Hebrew]. For an account of the events in the Southern Command's intelligence department before the war,

It is worth noting that the Northern Command's intelligence, headed by intelligence officer Lt. Col. Hagai Mann, similarly detected signs that Syria was preparing for offensive action. These assessments were dismissed by the Intelligence Directorate but were sent to the head of the Northern Command, Yitzhak Hofi, and influenced his reinforcement efforts before the war.<sup>33</sup>

In a 2013 lecture about intelligence during the Yom Kippur War, Brig. Gen. (res.) Ephraim Lapid, a lieutenant colonel in the reconnaissance department during the war, noted "special credit to the Israeli Navy's intelligence, the only body in the intelligence community and the IDF that was ready for war and did not accept the Intelligence Directorate's assessment".<sup>34</sup>

The naval intelligence officers in Unit 848's maritime network intelligence section detected some rare and unusual communications in the Egyptian Navy's systems, from the end of September till October 5. On October 4, section head Uzi Blutreich put out a message pointing out these unusual communication activities to the Navy's intelligence and the IDF Intelligence Directorate. This message came on top of the clues spotted in the maritime domain but did not lead the Intelligence Directorate to revise its assessment that these signs pointed to a military exercise, not a war.<sup>35</sup>

According to Meretz:

Representatives of naval intelligence who regularly participated in the Intelligence Directorate's various forums presented in their remarks an up-to-date picture of the navy's activities. But the implication of all this information (i.e., war—E.G.) was rejected by the head of the Egypt desk in research (i.e., the research division) and by the heads of the Intelligence Directorate's Research Department, with the explanation that "you don't know the full picture" and also that "we have better information, which contradicts that conclusion".<sup>36</sup>

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see Zvi Neta, *Signs* (Rishon LeZion: Yediot and Hemed, 2022) [Hebrew]. Col. Yoel Ben Porat, the commander of Unit 848 (8200) during the war, also addressed the three reports in the maritime domain in his testimony before the Agranat Commission. Some of his remarks are censored. "Testimony of Yoel Ben Porat at the Agranat Commission", session 29, December 20, 1973, IDF Archive, 44–50 [Hebrew].

<sup>33</sup> Col. (res.) Hagai Mann, "[Northern Command intelligence in the period before the Yom Kippur War](#)", website of the Golda Meir Center for Leadership and Society [Hebrew].

<sup>34</sup> Ephraim Lapid, "The Intelligence Directorate failed in its primary mission, including reconnaissance", lecture at the Intelligence Corps conference on the Yom Kippur War, in Effi Meltzer (ed.), *Intelligence in the Yom Kippur War—40 Years Later*, 46–47 [Hebrew].

<sup>35</sup> Guetta, "Unusual activity", *ibid.*

<sup>36</sup> Meretz, "Naval intelligence in the Yom Kippur War", 50 [Hebrew]; Albert Sudai, head of the political desk at Branch 6, Egypt, in the IDF Intelligence Directorate, was concerned by the possibility of war, and from October 1, started examining the clues even though this was not his role. In his testimony

Brig. Gen. (res.) Aharon Levran, who served as the Intelligence Directorate commander's operations aide in 1973, confirmed Meretz's account in a conversation in 2022 and claimed that senior figures in naval intelligence were not privy to Marwan's information and worked by the book, following the clues that led to their conclusion about war.<sup>37</sup> According to Gilboa, himself a major in the Intelligence Directorate in 1973, "the Intelligence Directorate's officers looked down condescendingly at those in the Navy—those who'd failed in '67, who understood nothing outside their own 'bathtub,' who were incapable of seeing the overall picture".<sup>38</sup> In Meretz's account, the Intelligence Directorate's rejection of the naval intelligence assessments detailing the clues about war pushed the Navy's research officers to double-check themselves and take an even closer look. They concluded that the "Tahrir 41" drill was a deception. According to Meretz, Israeli naval intelligence did not address in its assessments the Intelligence Division's conception that Egypt would not launch a war until it possessed long-range weapons (planes and surface-to-surface missiles); instead, it focused on warning about war in the maritime domain.<sup>39</sup>

## Documents prepared by naval intelligence before the war

In a special naval intelligence dossier distributed on October 1, 1973, to Israeli Navy command with the heading: "High Alert and Maneuvers in Egypt", it was written that Egypt had launched an exercise involving all branches of its military that day, noting:

This is the first time since the War of Attrition that the Egyptian Navy has conducted a comprehensive maneuver in both theaters simultaneously. This maneuver is part of a large-scale, multi-pronged exercise. In the course of the exercise, readiness levels have been raised to the maximum and several units have taken operational readiness steps, apparently fearing Israeli activity, and we may expect heightened sensitivity in Navy units".

Paragraph 7 noted:

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before the Agranat Commission, he noted the clues he spotted in the maritime domain in addition to other signs on land. "[Testimony of Albert Sudai, head of the political desk at the Egyptian branch, at the Agranat Commission](#)", session 30, December 20, 1973, IDF Archive, 7 [Hebrew].

<sup>37</sup> Phone call between Col. (res.) Shlomo Guetta and Brig. Gen. (res.) Aharon Levran, September 2022, the content of which was communicated to me.

<sup>38</sup> Gilboa, "Naval intelligence warned", 50 [Hebrew].

<sup>39</sup> For more on the conception about Egypt that the IDF Intelligence Directorate adhered to, see: Eli Zeira, *Myth vs. Reality in the Yom Kippur War—Failures and Lessons* (Yediot Books, 2004), 109–117; Joseph, *The Watchman Fell Asleep*, 84–87; for more on naval intelligence, see Meretz, "Naval intelligence in the Yom Kippur War", 48 [Hebrew].

"there are no signs that behind this multi-branch Egyptian activity lie hidden operational intentions, and in our assessment, it is only an exercise. Nevertheless, it should be noted that the changes in deployment, heightened readiness, activation of the logistics systems, and reserves have brought the Navy to a position that allows for a rapid transition to operational activity.<sup>40</sup>

A document titled "Weekly Summary—Arab Navies for the week between September 25 and October 3" circulated in the Israeli Navy on October 3 provided detailed information about the activities of the Egyptian Navy and observed: "The activities undertaken thus far in the exercise are intended to shift the Navy's infrastructure (organization of manpower, preparation of vessels, arrangement of defenses for bases, preparation of cooperation mechanisms with other branches of the military) to a condition that makes it possible to launch an offensive. This situation has clear implications for the possibility of a rapid transition to genuine operational activities".<sup>41</sup> This wording was the closest to a warning about war to have appeared in Israeli Naval intelligence documents.

In Meretz's account, Israeli naval intelligence's research officers wrote unequivocal dossiers that included the word "war", but Lunz instructed that this word not appear at all—and it was removed. Lunz explained in his testimony before the Agranat Commission that since the Intelligence Directorate had assessed that war would not break out, he tried "to introduce the sense to the units" without using the word "war" explicitly.<sup>42</sup>

The signs detected in the Egyptian Navy were attributed by the Intelligence Directorate to an Egyptian war exercise, and an intelligence dossier from October 5 claimed that "the detection of activity by Israeli naval and aerial forces on October 4 (as part of a naval exercise) caused increased concerns in the Egyptian Navy. In response, security measures were heightened". This explanation—an exercise, and later Egyptian concerns about Israel—negated the alarming message of the report's clues about Egyptian naval activity which were included in the report.<sup>43</sup>

Under the headline "Signs That Did Not Match the 'Exercise' Explanation", the Agranat Commission report stated:

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<sup>40</sup> Lt. Col. Moshe Barnea, Head of research branch, Special Intelligence Dossier on the High Alert and Maneuvers in Egypt, October 1, 1973, IDF Archive, file 272–383/1975 [Hebrew].

<sup>41</sup> Weekly Summary—Arab Navies, 40/73, for the week between September 25 and October 3, 1973, IDF Archive, file 272–383/1975 [Hebrew].

<sup>42</sup> Meretz, "Naval intelligence in the Yom Kippur War" [Hebrew]; Interview with Meretz, *ibid*; Gilboa, "Naval intelligence warns", *ibid*. [Hebrew]; Lunz's testimony, 44, 75–76 [Hebrew].

<sup>43</sup> Bar-Joseph, *The Watchman Fell Asleep*, 167–168.

The Navy HQ was concerned about the irregular activity of the Egyptian Navy. A report from September 28 spoke of a voyage by two frigates from Safaga in the Red Sea to Port Sudan, as their crews were urgently summoned to return to their ships (testimony of Col. Lunz, head of the naval intelligence department). This report had such an impact on Captain Lunz who told the commander of the Navy that he felt it showed that the Egyptian Navy could pivot to war. But he did not propose to issue an alert to civilian shipping. Consequently, on October 3, the readiness level was heightened in the Israeli Navy. The Egyptians also made preparations to mobilize twenty fishing boats. Two Egyptian destroyers docked at Port Aden were placed on alert to sail out to sea within six hours. The Intelligence Directorate noted in a dossier from October 1 that "this is the first time since the ceasefire that the Egyptian fleet has conducted a large-scale exercise on two simultaneous fronts". But, it continued and reasoned, "it appears that this exercise is part of the multi-branch drill and it is possible that in this context, there will be a drill shifting the fleet into emergency mode—including readiness to launch vessels to sea". On October 4, the commander of the Navy was once again put at ease by the Intelligence Directorate's reassuring assessments, and he put the Navy back on regular alert (testimony of Maj. Gen. Telem).<sup>44</sup>

**The evacuation of the families of Soviet advisors and the departure of the Soviet fleet from Egyptian ports:** the Soviet Union received the first report from Sadat about the imminent start of a war only on October 4, and it was surprised. The Soviet advisors in Egypt and Syria had been helping to prepare their militaries for war, but they had not been told about the date or the plans. Assad, it seems, gave the Soviets a more detailed report about his war plans. In response to this information, the Soviet Union decided on October 4 to evacuate its advisors' families from Egypt and Syria. The evacuation was carried out on October 5, mostly by air but also by sea. Likewise, the order was given for the Soviet fleet to depart from Egypt's ports. Unit 848, which intercepted communications, picked up on information about this hasty evacuation of the Soviet advisors' families and reported it to the Intelligence Directorate's research department. Officers from Branch 3, the Intelligence Directorate's branch that focused on superpowers, had claimed in April 1973 that the Soviet Union had no interest in an Arab military initiative and that the Soviets could take several steps to deter one, including the removal of their naval units from the ports of Alexandria and Port Said. But when information arrived in October about the departure of these Soviet vessels, the Intelligence Directorate was hesitant to flag it up as a sign of impending war and proposed alternative explanations, such as a possible rift between the Soviet Union and Egypt.

<sup>44</sup> Commission of Inquiry—Yom Kippur War, Additional Partial Judgment: Reasoning and Additions to the Partial Report from 9 Nissan 5734 (April 1, 1974), Vol. I, Jerusalem, 5734/1974 [henceforth: Agranat Commission Report], 120–121 [Hebrew].

The head of the Intelligence Directorate, Eli Zeira, was asked by the Agranat Commission about the information about the Soviet fleet's departure from Egypt's ports and noted: "That was an exceptional but not unambiguous sign of war". He claimed that at the time, the assessment was that there might have been a dispute between the Russians and the Egyptians, or that the Russians were concerned a war might be brewing.<sup>45</sup> Lieutenant Rebecca Katz, who was responsible for monitoring foreign fleets at the naval intelligence department, emphasized this information about the Soviet fleet's departure in meetings and in a paper circulated on the morning of October 5; she said she knew that war was about to erupt.<sup>46</sup>

On the night of October 5–6, Ashraf Marwan, in a meeting with Head of the Mossad Zvi Zamir, provided the conclusive report about Sadat's intention to launch a war on October 6. In the same meeting, he also supplied information about the transfer of civilian airplanes and several old and vulnerable Egyptian naval ships from Egypt's ports to Port Tobruk in Libya thirty-six hours before the start of the offensive, so that Israel would not target them. By the time of this report, several destroyers and other ships had already reached Tobruk. It was Marwan himself who coordinated this transfer with Libya's ruler, Muammar Ghaddafi. Israeli intelligence knew that these were steps toward war. Marwan also reported that there was no intention to land Egyptian forces by sea.<sup>47</sup>

### *The Intelligence Research division discussions before the war*

As noted, Shalev spoke of the open debate before the consolidation of the Intelligence Directorate's assessment and of the involvement of the Navy and Air Force's intelligence departments. In later years, Shalev wrote in his book about the process by which this assessment was put together:

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<sup>45</sup> Pesach Malovany, *Red Flag above the Red Sea* (Israel: Effi Meltzer, 2017), 263–277, 453–454 [Hebrew]; Bar-Joseph, *The Watchman Fell Asleep*, 133–139, 144–147, 153–159, 168–172, 247–249; "Testimony of the head of the IDF Intelligence Division, Maj. Gen. Eli Zeira, at the Agranat Commission", sessions 17, 18, 19, December 13, 1973, IDF Archive, 72–73 [Hebrew]; Victor Israelyan, *Inside the Kremlin during the Yom Kippur War* (Pennsylvania State University Press, 1995), 1–19.

<sup>46</sup> Interview with Meretz, *ibid*; Gilboa, "Naval intelligence warns", 51 [Hebrew]; Navy HQ, naval intelligence branch in coordination with Branch 3 and Branch 6, [Immediate Naval Intelligence Dossier, 87/73](#): Departure of Most Soviet Naval Vessels from Egyptian Ports, October 5, 1973, IDF Archive, file 272–383/1975.

<sup>47</sup> Yossi Melman, "Our loyal traitor", *Haaretz* weekend supplement, January 17, 2020, 16–26 [Hebrew]; the wording of the report communicated by Zamir from Marwan appears in *Mabat Malam* 82 (October 2018), 53–57 [Hebrew].

According to restrictions put into place by the "Junction" (HaTzomet – the Mossad body responsible for handling agents) during the years before the Yom Kippur war, information from exceptionally sensitive sources was circulated to a select number of research officers. Such information was viewed by officials dealing with Egypt, including: the Research Department director and his deputies for assessment and operations; the directors of the Egypt section and its political desk; director of the superpowers section and his desk director; head of the basic research team; and the intelligence officer of the air force and his director of research.<sup>48</sup>

Shalev did not mention naval intelligence as part of this limited group who were in on the secret, and they were indeed not part of the discussions. Shalev also wrote in his book: "Although this cannot be regarded as a direct cause of error in the intelligence assessment, it is desirable – despite important consideration of the security of senior sources – to increase the number of officials privy to this information by including additional section directors within the research department. This would facilitate the participation of many more research officers in assessment discussions based on these unique sources. These officers would be able to express their positions, to debate, and to voice different and contradictory opinions, and in this way establish pluralism within the research arena".<sup>49</sup> The senior status of the Intelligence Directorate researchers who were privy to the information from the top agent Ashraf Marwan, and perhaps also from other sensitive sources, explains their dismissiveness toward the attempts made by naval intelligence and the commander of the Israeli Navy to present their information and assessment that war was to be expected.

Other officers in the Intelligence Directorate noted that anyone who voiced a contrary assessment—that war was possible—was excluded and criticized.<sup>50</sup> The Agranat Commission report pointed to a culture of adaptability and one might add, self-censorship in the Intelligence Directorate: even researchers with their own independent assessments, Albert Sudai, head of the political desk in the Egypt branch in the Intelligence Directorate and Lt. Col. Yaari, the head of the Syria branch in the Intelligence Directorate, who were more concerned about the possibility of war, became more cautious after presenting

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<sup>48</sup> Shalev, *Israel's Intelligence Assessment*, 212.

<sup>49</sup> Shalev, *Israel's Intelligence Assessment*, 212. According to Shalev's testimony, the Air Force's intelligence was hugely influential because of the importance of the balance of power between the Israeli Air Force and its Arab counterparts. Shalev, *Israel's Intelligence Assessment*, 3–4, 34–35.

<sup>50</sup> "[Testimony of Lt. Col. Aviezer Yaari \(head of the Syria branch at the IDF Intelligence Directorate\) at the Agranat Commission](#)", sessions 31, 35, 38, IDF Archive, December 27, 1973; testimony of Albert Sudai, *ibid*; lecture by Col. (res.) Zussia Kaniezer (head of the Jordan branch at the IDF Intelligence Directorate before the war) to an intelligence officer course: [Zusia Kanizher—The Warning of the Research Division in the Yom Kippur War](#) (video).

their assessment and having it thrown out by the research department, and they refrained from presenting an unequivocally contrary assessment.<sup>51</sup> It is possible that a similar pattern also affected naval intelligence officers, who after having their assessment in AMAN's research department discussions about the Egyptian Navy's readiness for war rejected, took a step back.

In an interview with Aviram Barkai in December 2013, Intelligence Directorate chief Eli Zeira was asked about the assessment presented by the head of the naval intelligence department, Captain Lunz, about the Egyptian Navy's readiness for war. Zeira claimed that he could not remember a conversation in which Lunz told him that he disagreed with the Intelligence Directorate's assessment or any warning about war from the naval intelligence department. Lunz stated in his testimony before the Agranat Commission that he had exchanged a few words with the head of the Intelligence Directorate in the corridor.<sup>52</sup> Shalev claimed in his own testimony before the Agranat Commission that he could not remember any of the participants in the assessment meetings saying that war was coming. He recalled only Sudai, who wanted to speak with him.<sup>53</sup> Lt. Col. Yona Bandmann, who headed Branch 6, the Egyptian branch in the Intelligence Directorate, was asked at the Agranat Commission about the report about the destroyers, and he was challenged with information that the navy's chief intelligence officer had told him that this was unusual. Bandmann claimed that Lunz had not pointed this out in their research forum.<sup>54</sup> Lunz noted that he had raised the unusual information about the sudden summoning of naval crews for a "planned" voyage through his deputy, Lt. Col. Meretz, who attended the Intelligence Directorate's discussions, and that it had not been accepted by the Intelligence Directorate.<sup>55</sup> Gilboa wrote: "How is it possible to explain that on that very Thursday, Lunz himself says in a meeting chaired by Brig. Gen. Aryeh Shalev, the head of research at the Intelligence Directorate, that the list of signs pointing

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<sup>51</sup> Agranat Commission Report, 158–160.

<sup>52</sup> Aviram Barkai, *The Wings of Error* (Ramat Hasharon: Intelligence Heritage Center, 2014), 19–21 [Hebrew]; Lunz's testimony, 34–35, 75.

<sup>53</sup> Shalev's testimony at the Agranat Commission, December 16, 1973, session 22, p.5. In his book, Shalev addressed the claim that the intelligence services had not considered the diverse opinions of investigators, noting First Lieutenant Siman-Tov from Southern Command; Albert Sudai, the head of the political desk at the Egypt branch; Lt. Col. Yossi Zeira from Unit 848; and Yoel Ben Porat, the commander of Unit 848. As for the last two, Shalev claimed that they did not present an assessment that war was coming. Shalev, *Israel's Intelligence Assessment*, 190–193. Shalev did not mention naval intelligence or Lunz as presenting an assessment that war was coming.

<sup>54</sup> "Testimony of Yona Bandmann at the Agranat Commission", January 6, 1974, 65,70–72.

<sup>55</sup> Lunz's testimony, 20–26, 81.



to war in the Egyptian Navy is complete [i.e., have been identified] and these remarks find no written expression in the naval section in the Intelligence Directorate's daily dossier?"<sup>56</sup>

## Analysis

In this section, we will analyze the factors that made the naval intelligence department, of all intelligence agencies, be the one to assess that war was about to break out, and how this assessment was received by the IDF Intelligence Directorate and the Israeli Navy.<sup>57</sup>

### *The deception that was exposed*

The Egyptian chief of military operations, Gen. Gamasy, noted in his memoirs several deception operations taken by the Egyptians to mislead Israeli intelligence. Concerning the maritime domain, he wrote that Egypt coordinated in advance the departure of two destroyers for repairs in a friendly Asian country (i.e., Pakistan), and that on their way they would visit the naval bases at Port Sudan (in Sudan) and the Port of Aden (in Yemen). This voyage, with these stopovers, was planned so that on the morning of October 6, the destroyers would find themselves in the Bab el-Mandeb Straits and in a position to fulfill their mission of blockading the Straits upon the eruption of war. The commanders of the destroyers were given sealed envelopes, and during their voyage, they opened them and discovered that their task was in fact to obstruct Israel's naval lines of communication lanes in the Bab el-Mandeb Straits.<sup>58</sup>

*A golden clue?* According to Lunz, all the signs in the maritime domain bar one could have been interpreted as consistent with an Egyptian exercise. The one exceptional clue was that after the report about the planned departure of two submarines escorted by a frigate from Safaga for repairs in Pakistan, another report arrived that the frigate's crew members had been urgently summoned at night for the voyage. That raised suspicions in the Israeli naval intelligence department, because if the voyage had been planned in advance, then why had its crew members needed to be summoned at short notice? In his testimony before the Agranat commission and in a later interview, Lunz emphasized this report as the main piece of information that exposed the deception scheme that the Egyptians had built, as if they were merely planning an exercise, and led him to tell the commander of the Israeli Navy that war was coming. Meretz, Lunz's deputy, claimed that

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<sup>56</sup> Gilboa, "Naval intelligence warns", 50–51 [Hebrew].

<sup>57</sup> Bar-Joseph, who analyzed the failure of the IDF Intelligence Directorate, pointed to a series of organizational factors and highlighted the impact of personality-based, psychological factors among some of the top brass. See Bar Joseph, *The Watchman Fell Asleep*, 235–251.

<sup>58</sup> Mohamed Abdel Ghani El-Gamasy, *The October War: Memoirs of Field Marshal El-Gamasy of Egypt* (Cairo: American University in Cairo, 1993), 136, 139, 195, 215–216, 222.

there were many telltale signs of war and that he did not attach any special significance to this particular piece of information.<sup>59</sup>

### *The early warning potential of the maritime domain*

Lunz said in an interview in 1995: "For some reason, in most of Israel's wars, the warning came from the sea. It seems that the preliminary orders that naval units must execute are easier to decipher, or take longer, and in this war, too, we came to the decision that war was about to break out before the rest of the system".<sup>60</sup> As noted earlier, as early as May 30, 1967, on the eve of the Six-Day War, Israel's naval intelligence had come to the conclusion that the Egyptian Navy was ready for war. Since naval vessels, ships, and submarines demand high levels of maintenance and are often being repaired or maintained, they need to be specially put into use in order to become operational. Likewise, there are lengthy preparations that must take place for a ship to sail out to sea and reach its theater of operations before a war. Sadat wrote in his book that "the countdown had started earlier—ten days before Zero Hour. At that point our naval units had sailed out to take their combat positions. Each naval unit was given sealed envelopes containing operation instructions which were not to be opened until a certain code word had been received".<sup>61</sup> The Egyptian chief of staff, Saad el-Din Shazly, wrote in his book about October 1:

But our final step that day was the irrevocable one. Our submarines sailed to their appointed battle stations. The captains did not know their mission: their sealed orders were not to be opened until a few hours before H-Hour. But there was no fail-safe procedure. From the moment they sailed, the boats were forbidden to use their radio. There was no way whatever of recalling them or cancelling their mission. With their sailings, though the crews did not know it, the war had effectively begun.<sup>62</sup>

There is a certain discrepancy in the timelines, but in both reports, it was the Navy that went to war first. Israeli naval intelligence identified the preparations for the voyages at the end of September, the destroyers on October 1 and the submarines and accompanying frigate on October 2.<sup>63</sup> Given the particular characteristics of a navy's preparations for war, monitoring the maritime domain may provide an early warning about impending war (Fig. 4).

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<sup>59</sup> Lunz's testimony at the Agranat Commission, 74–79; Ran, "Interview with Lunz", 22 June 1995, 2 [Hebrew]; interview with Meretz, *ibid.*

<sup>60</sup> Ran, "Interview with Lunz", 22 June 1995, 1 [Hebrew].

<sup>61</sup> Anwar Sadat, *In Search of Identity: An Autobiography* (New York: Harper & Row, 1978), 246.

<sup>62</sup> General Saad El-Shazly, *The Crossing of Suez* (London: Third World Centre for Research and Publishing, 1980), 142.

<sup>63</sup> Navy HQ, "Activities of Arab and superpower navies in the Yom Kippur War", 1–2 [Hebrew]; Guetta, "Unusual activity", *ibid.* [Hebrew].



Fig. 4: A Romeo-class submarine, of the sort sold by the Soviets to Egypt and used in the Yom Kippur War to block shipping in the Red Sea (source: Naval Intelligence Directorate, Wikipedia)

### *The organizational aspect*

The Israeli Navy's chief intelligence officer is professionally subordinate to the chief of the Intelligence Directorate, but in the chain of command, he answers to the commander of the Navy. Lunz testified that once the chief of the Intelligence Directorate, Eli Zeira, determined that AMAN's assessment was that there would be no war, he felt that he could not contradict him in writing and therefore scrubbed the word "war" out of the naval intelligence department's documents. It appears that Lunz did not take determined action to convince the top brass of the Intelligence Directorate that his own assessment was correct. He focused on transmitting information and assessments to the commander of the Navy, with the aim of convincing him that war was coming. The commander of the Israeli Navy, Maj. Gen. Benny Telem, noted that he met the head of the Intelligence Directorate by chance and spoke with him about Lunz's assessment, but the intelligence chief rejected it, and Telem accepted his view. Later, after more information piled up, the Navy commander accepted Lunz's assessment and prepared for war, as of the morning of October 5.<sup>64</sup>

The Agranat Commission's report claimed that "it was hard for intelligence officers outside the research department to argue with it and with the head of the Intelligence Directorate about the validity of its assessments", because the Intelligence Directorate

<sup>64</sup> Telem's testimony at the Agranat Commission, *ibid*; Telem, "Missile Boat Battles in the Yom Kippur War" in Benny Michaelson (ed.), *The Yom Kippur War: Seminar—Issues in Israeli Security 1998* (Reut: Effi Meltzer, 2013), 520–521 [Hebrew]. Interview with Brig. Gen. (res.) Gavi Naveh, bureau chief of the commander of the Israeli Navy during the war, Kfar Saba, July 28, 2022.

was the only center for military intelligence assessments in the country and alone decided what intelligence material would be circulated and who would receive it (besides certain sources belonging to Mossad). According to the Commission: "Thus the opinion of the Intelligence Directorate and its research department took over all branches of the intelligence services. For example, we have already noted that the head of the naval intelligence department, Captain Lunz, was concerned about the irregular movements of the Egyptian Navy in the Red Sea, but nothing came of it, because his concerns failed to penetrate the Intelligence Directorate's research system".<sup>65</sup>

The Israeli Navy and Air Force's intelligence departments are frequently mentioned in the same breath as two intelligence bodies with relative autonomy from the Intelligence Directorate. But the difference between them on the eve of the Yom Kippur War was that the naval intelligence department, which was not fully privy to information from sensitive sources and closed forums, compiled an independent—and correct—assessment about the outbreak of a war, whereas the Air Force's intelligence, which was fully privy to all the information and meetings, supported the Intelligence Directorate's mistaken assessment.

Bar-Joseph, whose research emphasizes the personal, psychological dimension, distinguished between theory-guided officers, such as Zeira and Bandmann, and data-guided officers, such as Lunz, Unit 848 operations officer Shabtai Brill, and Syria branch head Yaari, who reached different professional conclusions, but whose professional status did not allow them any substantial influence over the dominant intelligence position.<sup>66</sup> As we have seen, the Israeli naval intelligence department, as an organization, reached its own assessment about war. Lunz, as the head of this organization, presented this assessment to the Intelligence Directorate and commander of the Israeli Navy, but he exercised self-restraint and tried to maneuver his way through the writing of his assessments because he was professionally subordinate to the head of the IDF's Intelligence Directorate.

### *Discrepancies between spoken and written accounts*

Gilboa noted an inconceivable discrepancy between what the Israeli Navy's intelligence officers were saying in person and what they put into writing.<sup>67</sup> As we have seen, Lunz prevented his subordinates from explicitly referring to war in documents while trying to send the message that war was coming without using the word itself.<sup>68</sup> Sudai claimed in his testimony before the Agranat commission that "freedom of opinion in discussions—that

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<sup>65</sup> Agranat Commission Report, pp.160–161 [Hebrew].

<sup>66</sup> Bar-Joseph, *The Watchman Fell Asleep*, 99–101, 248–251.

<sup>67</sup> Gilboa, "Naval intelligence warns", *ibid.* [Hebrew].

<sup>68</sup> Lunz's testimony, 44 [Hebrew].

exists. But in writing, there's the consensus. You can't write something that isn't accepted".<sup>69</sup> This approach, of writing the "research view", reflecting the position of the system and striving for consensus, explains how and why contradictory information and assessments, such as that of the naval intelligence department, were softened or did not receive expression in official intelligence documents. This discrepancy made it possible for the Intelligence Directorate's heads to claim after the war that they could not recall any intelligence officers presenting contrary assessments, making it difficult to examine the claims of naval intelligence officers and others that they did so or raised questions in meetings.

### *The maritime domain as a secondary domain*

Despite the fact that in both the 1956 Suez War and the 1967 Six-Day War, the primary *casus belli* came in the maritime domain, with the closure of the Straits of Tiran to Israeli shipping,<sup>70</sup> the IDF nevertheless considered this domain of secondary importance and did not perceive the naval intelligence department—nor did this department seem to perceive itself—as a provider of strategic intelligence.

Likewise in 1973, the maritime domain was not expected to play a central role in any future war, and the IDF Intelligence Directorate was preoccupied mainly with the threat from Egypt and Syria's air and ground forces. There nevertheless remained a possibility for action in the maritime domain with the outbreak of the war, including offensive activities. According to Mohamed Fawzi, the Egyptian minister of defense, Admiral Mahmoud Fahmy, the commander of the Egyptian Navy until 1972, had plans to deploy naval commando forces against the ports of Haifa and Ashdod, which were scrapped by Sadat. Likewise, there was a plan for an amphibious landing on the Rumani Coast, which the Egyptian military trained for but which was also canceled. The Israeli Navy was aware that Egypt had plans for amphibious landings, but not that it had canceled them, and it deployed forces in anticipation.<sup>71</sup>

<sup>69</sup> Sudai's testimony, 7. See also remarks of Maj. Moshe Shemesh in Shalev, *Israel's Intelligence Assessment*, 247.

<sup>70</sup> There were of course other factors in both wars. On the issue of the Straits of Tiran, see Shalev, *Israel's Intelligence Assessment*, 15–18; Michael B. Oren, *Six Days of War* (New York: Presidio Press, 2003), 11, 82–126.

<sup>71</sup> Chapters of the book by Mohamed Fawzi, a former Egyptian minister of war, about the October 1973 war were published in the *Alshara'ah* newspaper in Lebanon, 080888–241088, special publication, Hatzav, 23.04.89/843/013, The Moshe Dayan Center for Middle Eastern and African Studies, Tel Aviv University; Pesach Malovany, *Mabat Malam* 82 (October 2018), 41 [Hebrew]. For more on the Rumani Coast landing, see Col. (res.) Shlomo Guetta, [The Egyptian Amphibious Landing that Never Happened in the October 1973 War, the Ramadan War](#), The Yom Kippur War Center, September 2022 [Hebrew].

As we have seen, the Mossad's agent, Ashraf Marwan, provided information in April 1973 about Egypt's intention to blockade the Bab el-Mandeb Straits as part of its war plans. The blockade of the straits played an important role in the Egyptian war plan, with the aim of refuting Israel's claim that its control of Sharm el-Sheikh guaranteed freedom of navigation.<sup>72</sup> Former IDF Chief of Staff Yigael Yadin, who sat on the Agranat Commission, noted the early warning potential of information in the maritime domain. He pointed to information from May indicating that two destroyers would blockade the Bab el-Mandeb Straits, and he inquired whether the mention of these destroyers in October should have attracted the attention of the army's research officers.<sup>73</sup> Similarly, in the two days preceding the war, Israel received information about the departure of two Soviet vessels from Egyptian and Syrian ports, on top of the information about the aerial evacuation of the Soviet advisors' families. Nevertheless, it seems that the Intelligence Directorate attached little importance to these signs of war in the maritime domain.

### *The Egyptian Navy did not go to war alone*

Instead of the early warning information, clues, and the Israeli Navy's assessment of the Egyptian fleet's readiness for war providing grounds for reexamining the Intelligence Directorate's assessment that this was only an exercise, the prevailing consensus ("The Conception", in Israeli parlance) was that Egypt's own assessment was that it was not ready for war—and this conception served to negate the naval intelligence department's information and assessment about war.<sup>74</sup> A similar process unfolded when information about the Syrian Army's readiness for war was dismissed (as opposed to the Syrian Navy, about which there was no information), since in the prevailing conception, Egypt was not ready for war—and Syria would not go to war without Egypt.

### *The impact of the naval intelligence department's assessment on the Israeli Navy's readiness for war*

The Israeli Navy, which failed in the Six-Day War, had embarked on a protracted process of force buildup, consolidating its combat doctrine, and preparing for the next war. Its units, and especially the Shayetet 13 marine commandos, but also the missile boats

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<sup>72</sup> Joseph, *The Watchman Fell Asleep*, 127–129 [Hebrew]; Shmuel Bar, *The Yom Kippur War Through Arab Eyes* (Tel Aviv: Ma'archot, 1986), 30–32, 70–71 [Hebrew].

<sup>73</sup> Yadin's questions during Bandmann's testimony; sections were censored and are missing. Bandmann's testimony, 70–72.

<sup>74</sup> Telem claimed in 1998, regarding his conversation with Zeira: "That's how I interpret what he said: Listen, the Navy's a small entity. Your signs, that's not something the IDF can accept". Telem, "Missile boat battles", 520–521 [Hebrew].

and landing craft, had taken part in many operations in the War of Attrition and in the Lebanese theater, amassing combat experience and confidence in their abilities.<sup>75</sup> This process placed the Israeli Navy, on the eve of the Yom Kippur War, at a heightened level of readiness, regardless of the immediate intelligence warning. Moreover, unlike the IDF's ground forces, the Israeli Navy does not rely on reservists for its combat forces but rather mostly on its standing force, with only limited call-ups of reserves for vital technical roles. Such a mobilization was conducted in a selective way on October 5, despite the absence of any authorization for it.<sup>76</sup> The naval intelligence early warning on September 30 contributed to boosting the navy command awareness of the possibility of the outbreak of war. The commander of the Navy, Maj. Gen. Telem, raised its readiness level on October 3 but lowered it again on October 4. Telem noted in his testimony before the Agranat Commission that he had accepted the head of the Intelligence Directorate's assessment and that the Navy did not operate in a vacuum, functioned in a particular framework (namely the IDF and the General Staff), and did its best to work accordingly. The Israeli missile boat exercise on the night of October 4, which had been planned in advance, also contributed to the Navy's readiness. Following fresh information from Lunz, on the morning of October 5, Navy commander Maj. Gen. Telem asked to cancel a planned visit to Haifa and convened a meeting where he gave instructions to prepare for war. According to Lt. Col. Yitzhak Davidi, the head of the Navy's operations branch during the war, in the two days before the war, the sense at the Navy's HQ was that a war would definitely break out. On Friday night (October 5), Davidi personally phoned every commander of a Navy unit or base and explained that his readiness cable was serious, and that this was a genuine alert for war.<sup>77</sup>

## Conclusion

On the eve of the Yom Kippur War, Israeli naval intelligence focused on monitoring the signs of impending war coming from the Egyptian Navy, and it came to the conclusion that the Egyptian Navy was ready for war and indeed would go to war. These signs and the naval intelligence department's assessment were rejected by the top brass of the IDF Intelligence Directorate, who claimed that they had additional information that Egypt did not intend to go to war. In light of this, Captain Lunz, the head of the Israeli Navy's intelligence department, refrained and prevented his subordinates from explicitly

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<sup>75</sup> Chaim Nadal, *He Who Dares, Wins: Special and Integrated Aerial and Naval Operations of IDF Forces Between the Two Wars* (Ben Shemen: Modan, 2015), 198–234 [Hebrew].

<sup>76</sup> Interview with Gavi Naveh, *ibid.*

<sup>77</sup> Lunz's testimony, 24–34 [Hebrew]; Maj. Gen. (res.) Benny Telem, "Missile boat battles", 520–521 [Hebrew]; Gilboa, "Naval intelligence warns", 51 [Hebrew]; telephone interview with Yitzhak Davidi, August 29, 2022; interview with Gavi Naveh, *ibid.*

warning about war in the organization's intelligence dossiers, but he continued pushing the message that war was coming to the commander of the Israeli Navy. This, together with the unique features of the Israeli Navy, made an important contribution to the Navy's readiness for war.

One core lesson from the Yom Kippur War was the need for research pluralism, additional organizations capable of conducting research and providing the Intelligence Directorate with additional assessments, and also freedom for junior officers and researchers to voice their opinions. The Israeli naval intelligence department's experience helps to illuminate this point. Meretz noted in his article from 2013 that the Israeli Navy's intelligence officers were professionals, which allowed them to form an independent assessment that deviated from the consensus, but they also had been trained to be disciplined and to accept their superiors' assessments. In his opinion, there was insufficient determination to present the naval intelligence department's contrary assessment. This, in his account, is the primary lesson from the case of Israeli naval intelligence during the Yom Kippur War.<sup>78</sup> The question is how a balance may be struck between the autonomy and independence of research bodies, such as naval intelligence, on the one hand, and the need to keep them involved in a way that expresses contrary opinions and allows them to influence the broader intelligence community, on the other. This study has also flagged up the fact that the departure of Egyptian submarines and ships was the first stage of the Yom Kippur War, which underscores the potential of the maritime domain to provide warnings about impending war, an issue that demands further research. It also demands an examination of the question whether this conclusion is relevant regarding the threats with which the State of Israel is presently confronting, such as Iran and its proxies.

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<sup>78</sup> Meretz, "Naval intelligence in the Yom Kippur War", 51 [Hebrew].



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## Napoleon's Failure to Conquer the Land of Israel: Principles of Maritime Strategy, Then and Now

*Daniel Segev and Benny Spanier*

In 1798, General Napoleon Bonaparte disembarked at Abukir, near Alexandria, at the head of a large ground force of 37,000 men, having been taken there by a French naval force. Some ten months later, after a failed campaign of conquest, he performed a hasty and stealthy retreat back to France, leaving his army behind in Egypt. The invasion had taken place at the height of the French Revolution, a period of internal strife and regime change in France in 1789-1799.

This article seeks to examine how and why Napoleon failed and what insights and lessons may be drawn from his expedition for Israel's geostrategic position in the present day. The argument that we seek to advance is that the roots of Napoleon's failure lie in the (British) Royal Navy's activities against his forces: its destruction of the French landing fleet, its capture of the vessels that sought to reinforce and supply French forces as they advanced north along the coastline, and its assistance to the Ottoman forces besieged in Acre. In other words, the decisive factor behind the failure of Napoleon's land expedition in the Land of Israel was the Royal Navy's absolute sea control in the eastern Mediterranean and its intervention on the side of the Ottomans to thwart Napoleon's invasion.

First, we shall present several principles about the concept of sea control, after which we shall describe the historical background of Napoleon's expedition in the Land of Israel and his failure, and we shall discuss aspects of naval strategy. Later, we shall compare Israel's situation in the present day to Napoleon's situation back then, finding both similarities and differences. We conclude that like Napoleon's expedition in the Land of Israel, the modern State of Israel is similarly dependent on maritime supply lines and must therefore ensure its control of this maritime domain. We shall analyze the balance of power between Israel and its enemies in the northern maritime arena and present our understanding of the new required doctrine of sea control, and its limitations, in light of the lessons of history.

### Sea control

The subject of sea control has been extensively studied over the years, including by Alfred Thayer Mahan (1840-1914), Sir Julian Stafford Corbett (1854-1922), Admiral Raoul Castex (1878-1968), Admiral Wolfgang Wagner (1875-1956), and many others. Analysis of the elements of maritime control tends to focus on the balance of naval power, naval strategy, naval battles, and the integration of naval forces in land battles, in terms of amphibious

landings, naval sieges, and artillery support to assist and supplement land-based efforts. Several conventional terms are important for our discussion:

- **Sea power:** The ability of a state to extend its military power onto the seas to advance its needs and to deprive its enemies and rivals of capabilities. In his book *The Influence of Sea Power upon History, 1660-1783*, published in 1890, Mahan defines the elements of sea power as a fleet of warships, support vessels, a merchant fleet, naval bases, capable manpower, and today we would add, an air force ("Sea Power", *Encyclopedia Britannica*).
- **Command of the sea/Mastery of the sea/sea control:** The ability of a state, using its sea power, to use its maritime forces without interference and to deny the same to its enemies and rivals. Command of the sea is the highest achievable level of sea control (Corbett, 1911).
- **Maritime superiority:** The degree of dominance by one maritime power over another, allowing it to operate at a particular time and place, and in doing so, to prevent the interference of any opposing force (Corbett, 1911).
- **Littoral warfare:** The domain of warfare adjacent to a coastline; the definition of "adjacent", in terms of distance, is a matter of debate (Vego, 2015).

Julian Corbett, one of the preeminent maritime strategists, refers to sea control as "command of the sea", which he divides into two levels.<sup>1</sup> This distinction allows us to accurately describe the type of maritime control with which this article deals: we are discussing *local command*, in the context of the eastern Mediterranean.

**General command:** "General command is secured when the enemy is no longer able to act dangerously against our line of passage and communication or to defend his own, or (in other words) when he is no longer able to interfere seriously with our trade or our military or diplomatic operations. This condition exists practically when the enemy is no longer able to send Squadrons to sea." (Corbett, 1911)

This contrasts with **local command**, which "implies a state of things in which we are able to prevent the enemy from interfering with our passage and communication in one or more theatres of operation. Both local and general command may be (a) temporary; (b) permanent."

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<sup>1</sup> Shaul Chorev, *Maritime Domain, Maritime Strategy, and Everything in Between* (Israel: Maritime Policy and Strategy Research Center, University of Haifa, and Maarachot, 2021), p. 150, fn. 77 [Hebrew].

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## The historical and geostrategic background of Napoleon's campaign in Egypt and the Land of Israel

Great Britain and France fought for global domination and the expansion of their respective empires. In 1792, at the height of the French Revolution, coalitions coalesced in Europe to counter France's aggression and the danger that its revolutionary ideas posed to their monarchist regimes. In 1796, Napoleon Bonaparte, then a young general, was sent at the head of an invading force to northern Italy, where he achieved significant gains against the local kingdoms and the Austrian Empire, and he founded an independent republic based on the principles of the Revolution, under French protection. Upon his return to France, basking in victory and glory, the Directory, the executive branch of Revolutionary France, appointed him the commander of the Grand Armée, an innovative 200,000-strong military force based for the first time on mass conscription, assembled on the banks of the English Channel in preparation for an invasion of Great Britain.<sup>2</sup> After a string of maritime defeats, France realized that Great Britain enjoyed unequivocal sea control and understood that it was futile to try to invade the British Isles without sea control in the Channel and its surrounding seas. Its invasion plan was therefore abandoned, and Napoleon and his army were tasked with attacking Great Britain through an invasion of Egypt in order to sabotage British trade with its prized imperial possession, India (Gihon, 2003).

### Napoleon's campaign and the reasons for its failure: a maritime strategy perspective

En route to Egypt, Napoleon conquered the island of Malta after a brief battle and negotiations with its chivalric orders. When his fleet reached Abukir, undetected by the Royal Navy, a 37,000-strong force began to disembark on May 1, 1798. After conquering Alexandria, Cairo, and the whole of Egypt, Napoleon continued north at the head of a force of 12,000 men along the coast of the Sinai through El-Arish, Gaza, Jaffa, and the interior of the Land of Israel, all the way to Acre, to which they laid siege. Coming after several successes, Napoleon's invasion was expected to produce a swift and successful conquest. His surprise landing on Egypt's shores had provided a positive start, as had his initial successes in land battles in Egypt and the Land of Israel. The French had triumphed over Mamluk and Ottoman forces thanks to their superior equipment and the advanced methods of warfare that they had brought from Europe. Napoleon's plan was

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<sup>2</sup> In the context of these wars, mass conscription was used, which constituted an RMA (revolution in military affairs), and allowed European armies to conduct wars (or rather, dragged them into such wars) on massive scales that were not previously typical.

to conquer Acre (controlled at the time by its Ottoman ruler, Jazzar Pasha), seize control of its treasures and 300,000 people (including Druze, Maronite, and Bedouin — ethnic minorities who were waiting to see the results of the siege before deciding which side to back), conquer Damascus, and from there, to march on Constantinople (Gihon, *ibid.*).

The precise time at which Napoleon's campaign began to falter came on August 1, 1798, about a month after the landing at Abukir. That was when a naval force under the command of Horatio Nelson caught sight of the French landing fleet anchored at Abukir Bay and obliterated it. The Battle of Abukir fits Alfred Thayer Mahan's definition of a "decisive battle" (Mahan 1890): a battle in which the eventual victor is guaranteed sea control.

Indeed, the battle ended in the decisive victory of the Royal Navy, under Nelson's command. The Royal Navy, which comprised 14 battleships (13 with 74 cannons apiece, and one with 50 cannons), retained its full power, while the French fleet, comprising four frigates and 13 battleships (one with 120 cannons, three with 80 cannons apiece, and nine with 74 cannons), suffered the obliteration of three battleships and one frigate and the capture of nine more battleships. Of the French forces, 1,700 men were killed, 600 were wounded, and 3,000 were taken captive, compared with only 218 deaths and 677 injured men on the British side (Sas, 1991). By the end of the battle, the French remained in possession of only one battleship and three frigates in the entire Eastern Mediterranean. The British fleet sailed away after the hostilities, leaving behind only a small force under the command of Vice Admiral Sidney Smith, who was made a commodore. He commanded a fleet of ten ships, two of which were its flagships (HMS *Theseus* and HMS *Tigre*); the others were smaller vessels taken as bounty from the French fleet. This balance of power gave the Royal Navy absolute sea control, which allowed Great Britain to undertake a series of maritime activities that thwarted Napoleon's plans. From this point on, for the duration of Napoleon's campaign, the Royal Navy maintained its control of the Eastern Mediterranean. Great Britain took advantage of this control to help its Ottoman allies repel Napoleon's invasion, until victory on the battlefield.

Great Britain's sea control was expressed in several maritime strategies:

### *Anti-Access/Area Denial (A2/AD)*<sup>3</sup>

Vice Admiral Sidney Smith leveraged his sea control to deny access to the small remaining naval forces under Napoleon's command in the relevant theater. Thus, on March 20, 1799, ahead of the Siege of Acre, nine small French boats escorted by a corvette arrived

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<sup>3</sup> Military capabilities used to prevent or constrain the deployment of opposing forces into a given Theater of operations and reduce their freedom of maneuver once in a theater (Simon, 2017).

off the coast of Acre, carrying heavy siege cannons sent by sea because they could not be transported overland through Egypt. HMS *Tigre*, under Smith's command, captured the convoy: seven ships surrendered, while the corvette and two other ships managed to escape. The cannons and ammunition that would have been the main artillery for the conquest of the heavily fortified city of Acre fell into British hands, who transferred them to the besieged Ottomans in Acre. The captured ships were added to the British fleet. The capture of the siege cannons had a decisive effect. Without them, Napoleon was forced to shell Acre's walls using smaller field cannons his force carried on its journey from Egypt. With such limited firepower, he had to concentrate his efforts to breach the walls on a single point, which allowed the city's defenders, with the support of British marines who landed at Acre Port, to build another interior wall and thus stop Napoleon's forces from breaking into the city (Gihon, *ibid.*).

### *Firepower support for ground forces*

Sea control allowed Britain to provide backup for ground forces with supplementary firepower. This assistance comprised two elements:

- **Artillery support:** Sea control allowed the British to provide firepower to their Ottoman allies, besieged in Acre, from their shipborne cannons. Several battleships, led by HMS *Theseus* (with its 74 cannons), took position north of Acre; others, led by HMS *Tigre* (80 cannons), mobilized to its south. These cannons caught Napoleon's army, besieging the city, in a crossfire. This was an extraordinary display of firepower, considering the number of supporting cannons (Urman, 1983).
- **Amphibious support:** British marines serving on these ships, having landed at the Port of Acre, helped to reinforce the city's fortifications, conducted ground incursions against French siege instruments, and during Napoleon's last massive assault after he breached the external wall, played an active role in the battle to defend the city (Urman, *ibid.*).

### *Sea lines of communication (SLOC)*

Sea control allowed the British to secure the sea lines of communication (SLOC). These sea lines were Napoleon's only means of maintaining, supplying, and reinforcing his army. On the other hand, these sea lines, secured by the British, allowed Acre's defenders to receive reinforcements without having to cross the ground-based siege of the city that Napoleon had laid. Britain's sea control blocked France's logistical and military capabilities both in Egypt, where the main invasion force remained, and at the siege of Acre itself. This control also allowed the Ottomans to bring in reinforcements and supplies from Rhodes to Acre by sea, via lanes secured by the British. During the Siege of Acre, Britain's sea

control meant that their besieged Ottoman allies enjoyed supplies of food, arms, and ammunition, while the French forces besieging Acre had to ration their ammunition and suffered from permanent gunpowder shortages.

### *Port blockades*

The Royal Navy's strategy in the Mediterranean, thanks to its sea control, included a local siege of the Nile Estuary, where a surviving fragment of the French fleet from the Battle of Abukir was stationed. This French force managed to escape the siege and deliver supplies to Napoleon's forces at Gaza, and owing to the shortages of the ground force, the French fleet transferred some of its shipborne cannons and most of its ammunition. This faction was caught by a British flotilla on June 18, 1799, as it retreated back toward the Port of Toulon. The tactic of port blockades thus contributed both to Britain's maintenance of its sea control and to its tactical and strategic achievements.

### *Lessons for the State of Israel from Napoleon's failed invasion—then and now*

We note similarities between the predicament of Napoleon's invading army in Egypt and the Land of Israel in the eighteenth century and the State of Israel's geostrategic position in the twenty-first century:

- The same geographic area: the eastern shore of the Mediterranean Sea, from Gaza to Acre, and the adjacent coastlines.
- The ground forces' superiority over their enemies in terms of equipment, organization, and means of control and assistance.
- The encirclement of ground forces by hostile entities, separating them from territorial connections to sources of supplies and reinforcements.

### **The present situation of the State of Israel: background**

Since the establishment of the State of Israel, its maritime strategy has been based on the pursuit of sea control for its navy with the assistance of its air force, naval commando forces, and coastal array of radar stations. Its efforts to achieve this goal in the maritime theater were directed mainly against enemy navies from Egypt, Syria, and Lebanon, against their coastal defenses, and against naval incursions from various terror organizations. This warfare, besides special operations and activities to secure shipping routes, may be characterized as littoral warfare:

The term "littoral warfare" pertains to the maritime zone adjacent to the coast (from the Latin for "coastal", *litoralis*). There is no single, agreed-upon definition for

this area, although the U.S. Navy defines it as extending from the beach/shore to a depth of 60m (200 feet). This definition is disputed, and some argue that the right definition must take into account the shore-based force's detection and weapons capabilities, thus expanding this zone to a range of up to 50 miles (Chorev, 2021).

In the theater of littoral warfare, Israel has enjoyed clear sea control. It has not faced restrictions in operating opposite enemy shores or against enemy warships or coastal defenses.

Owing to the Israeli Navy's operational success in the Yom Kippur War of 1973, Israel achieved sea control against enemy navies, and local sea control wherever needed against enemy coastal defenses, which were mainly oriented to detection and less equipped to attack targets at sea, a task that was the responsibility of the enemy fleets. The INS *Hanit* incident — a missile strike against an Israeli ship in 2006 — shocked the Israeli Navy and led it to understand that threats to its sea control came not only from enemy fleets but also from enemy coastal defenses, and not necessarily from state actors, but rather asymmetrically also from terror organizations, chiefly Hezbollah, which Iran was using as a proxy.<sup>4</sup> This success, from the enemy's perspective, led to the reinforcement of its coastal defenses with advanced surface-to-sea missiles, in terms of their quantity, quality, and operating methodologies. These coastal defenses, equipped with surface-to-sea missiles, radar-based detection systems, and other reconnaissance capabilities, now pose a challenge to the Israeli Navy's pursuit of sea control in this arena. We shall now briefly survey these capabilities, in light of their discernible impact on Israel's ability to achieve local sea control in this theater and because of the substantive differences with Napoleon's situation, which serves us for both inspiration and comparison.

Hezbollah's naval formation is of limited scope, but in cases of littoral warfare, it may prove effective. This effort spans hundreds of militants, who are considered elite warriors (Beeri, June 29, 2022).

Hezbollah is building up its own fleet of unmanned aerial vehicles (UAVs), which are active in maritime missions, both as remotely guided instruments and as independent vehicles with inert platforms immune to cyberattacks and effective against static targets.<sup>5</sup> These vehicles have observation capabilities and are apparently also able to conduct "suicide" attacks and even launch armaments. The total number of UAVs of all varieties in Hezbollah's possession is estimated to be over 2,000 (Beeri, July 3, 2022).

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<sup>4</sup> Asymmetric warfare is a situation in which "there is a fundamental difference between the warring sides in terms of their military or economic power" (Chorev, 2021). In this case: Hezbollah as a non-state actor organized as a militia against the State of Israel's navy.

<sup>5</sup> Lecture by Prof. Isaac Ben-Israel in Kiryat Tivon, July 7, 2022.

Hezbollah's maritime forces include naval commandos, trained to conduct maritime incursions on boats and dive to different distances and depths, and apparently also midget submarines for transportation or attack purposes. Hezbollah's naval operations also have possession of attack boats.

Hezbollah's stockpiles of surface-to-sea missiles include batteries of C-802 missiles with a range of 65 nautical miles. Their efficiency was proven with the strike on the INS *Hanit* in 2006, as we have mentioned. It is possible that Hezbollah also possesses Russian-made ultrasonic Yakhont missiles, with a maximum speed of 2.6 Mach and a range of 165 nautical miles (Beeri, June 29, 2002).

In conclusion, as the commander of the Israeli Navy said in 2018: "Hezbollah has built the best missile boat in the world: it has many missiles and it's unsinkable" (Maj. Gen. Eli Sharvit, Commander of the Israeli Navy, January 2018).<sup>6</sup> What insights, therefore, may be drawn from the similarities and differences between the present predicament of the State of Israel and that of Napoleon's expeditionary force in terms of the significance of sea control for land battles?

### *Anti-Access/Area Denial (A2/AD)*

In Napoleon's case, the Royal Navy had unfettered access to all parts of the Eastern Mediterranean. Its absolute sea control allowed it to reach any place it wished along the coastline of the Land of Israel, except for in the immediate vicinity of Acre, which was threatened by Napoleon's short-range cannons.

Nowadays, the enemy's coastal defense systems in the northern theater have created a threatened zone with a range delineated by the range of its weapons and detection capabilities. Considering the enemy's abilities, inserting the Israeli Navy into these areas would involve significant risk for its forces. Israel's ability to access these areas for operational purposes has not been totally denied, but such operations must now be planned with extreme caution and performed in conjunction with other IDF forces, understanding that as long as the enemy retains these abilities, even if temporarily neutralized, any local control that is achieved will be for a time-limited period, in delimited territory.

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6 Rothman, Eli (January 3, 2018). "[It would be the 'Third Lebanon War': Hezbollah used weapons to attack the gas rigs](#)", *Kikar HaShabbat*. [Hebrew]



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### *Firepower support for ground forces*

In the course of the battle for Acre, the Royal Navy anchored some of its warships north and south of the city during Napoleon's siege, beyond the range of his field cannons, and the British cannons onboard these ships supported the Ottoman forces besieged in Acre with firepower against the attackers.

Nowadays, firepower support for ground forces in the context of multidimensional warfare requires, in most cases, naval activity within range of the coast. In order to provide significant firepower support, a navy must use large vessels carrying heavier and more numerous weapons. In the current situation of the theater and the enemy's capabilities, with the deployment of advanced surface-to-sea missiles along the enemy coastline, the Israeli Navy is intensely vulnerable. The Israeli Navy's lack of sea control will harm its ability to provide firepower support to ground forces, unless such control — at minimum, temporary local control — may be achieved.

### *Amphibious landings (landing operations from the sea)*

Sidney Smith's ships, which performed several limited landing operations during the battle for Acre, were able to do so because Britain's doctrine of power projection from the sea was fundamental to its operation of its naval forces, including through the permanent stationing of marine forces on its battleships.<sup>7</sup> Similarly, since Britain's sea control in the region was unquestionable, the danger to its marine forces in transit to the coast and to the seacraft that bore them was minor.

Nowadays, amphibious landing operations to achieve objectives on land, whether as a primary mission or in support of other ground forces — an ability that may be defined as a form of power projection from the sea — are difficult and dangerous missions in the absence of sea control, such as in the case of amphibious landings conducted by Israel:

In September 1969, Israel conducted Operation Raviv, in which three landing craft were loaded with tanks and APCs in the Sinai Peninsula (Ras Sedr) and landed them on the western shore of the Gulf of Suez. Earlier, the Israeli Navy had conducted Operation Escort to ensure its sea control in the theater and to secure the passage of the defenseless landing craft. During Operation Peace for the Galilee (the First Lebanon War), the Israeli Navy possessed sea control and faced no significant enemy when landing forces on the coast. From all these historical examples, we see that sea control is a minimal condition for the performance of operational maneuvers from the sea and amphibious landings. An amphibious invasion force carries precious and

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7 Power projection from the sea is defined as a state's ability to deploy forces from the sea in territory beyond its borders and to maintain them (USA Dictionary of Military Terms, 2013).

immensely important cargo on its ships, but at the same time has no significant abilities to protect this cargo. (Spanier, 2022)

### *Securing Sea Lines of Communication (SLOC)*

Napoleon's army in Egypt and the Land of Israel was totally dependent on reinforcements from France via the sea. Given Britain's sea control, shipping lanes were almost hermetically sealed, and Napoleon was unable to secure reinforcements and thus suffered from an erosion of his forces, both because of battlefield casualties and because of deaths from the epidemic that blighted his army owing to the unsanitary conditions and contaminated water. In terms of supplies, Napoleon was forced to rely on the original supplies that he had brought with him and on whatever he could buy or confiscate from the locals. Napoleon's army outside Acre was surrounded by territory controlled by, or supportive of, his Ottoman enemies, such that this route was similarly blocked.

Nowadays, Israel, as a kind of island nation, is 98 percent reliant in terms of weight and 65 percent in financial terms on maritime freight (Gonen, 2021). Both military and civilian supplies are vulnerable to potential attacks on shipping lanes in the Mediterranean near Israel's ports by means of surface-to-sea missiles launched from enemy territory at merchant vessels along the coast and in the nation's ports and waiting areas outside its ports. In the absence of Israeli sea control, the scenario in which shipping off Israel's shores might be curtailed is a realistic and concerning possibility.

### *Port blockades*

Back then, if Napoleon had possessed sea control, he could have blockaded the Port of Acre in tandem with his land siege, thus cutting it off from its regular supplies, including reinforcements from the island of Rhodes provided by and under the protection of the Royal Navy. Traditionally, port blockades are conducted by naval forces, acting to prevent any passage in or out of enemy ports.

Nowadays, in certain geographic conditions, the development of surface-to-sea missiles renders port blockades possible without the involvement of naval forces. Thus, it is not inconceivable that the ports at Haifa and even Ashdod and Hadera might find themselves under a de facto blockade, with their docking areas and piers within range of surface-to-sea missiles, while being exposed to the enemy's land-based intelligence lookouts from the direction of land, which could be used to coordinate and direct enemy fire. This paper does not discuss the possibility of cyberattacks on ports, but their effective obstruction by surface-to-sea missiles in the northern theater is a significant threat, which may deprive Israel of a large share of its imports, even if the Port of Eilat remains operational (Gonen, 2021).

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### *Attacks on / protection of strategic assets at sea*

Another issue regarding which it is impossible to make a comparison with our test case of the implications of sea control for Napoleon's invasion, but which is pertinent to a discussion of Israel's present situation, is that as of November 2022, there are several gas rigs off Israel's shores, as part of efforts to search for, extract, and transport gas from the seabed; a number of liquefaction and gasification facilities are planned. An attack on any of these or future platforms would jeopardize the State of Israel's energy security, create a grave environmental pollution hazard, and harm Israel's reputation as a state capable of protecting its sovereignty, with all that would entail for its powers of deterrence. Neither the British, nor the French, nor the Ottomans had such assets in the time period that this paper discusses, and therefore no such comparison can be made. Nevertheless, it is clear that defending these assets demands a heightened level of sea control, limited neither by time nor by place:

The ability to realize the full scope of opportunities in the maritime domain hinges on an ability to attain and maintain superiority therein. In the Israeli Navy, sea control is defined as the freedom of movement of vessels to perform their missions in the pursuit of war objectives, while causing damage to enemy systems. Sea control is a means that serves an end, not an end in itself. (Saar Salma, 2020)

It is important to note that this definition, by the then-commander of the Israeli Navy, is not necessarily consistent with academic distinctions between sea control and various degrees of maritime command, but the meaning of his remarks is perfectly clear: he is using "sea control" in the sense of "local control."

### **Discussion and conclusion**

The key factor behind Napoleon's defeat was Britain's sea control in the Eastern Mediterranean. Britain's control of maritime supply lanes, obstruction of enemy naval access, port blockades, firepower support to ground forces, and amphibious landings from the sea — all these resulted from Britain's absolute sea control in the Eastern Mediterranean. The State of Israel's position on the Mediterranean coastline and dependence on that coastline for its main supply routes is fundamentally similar to that of Napoleon's expeditionary force. But unlike in Napoleon's case, the emergence of surface-to-sea missiles and UAVs in the modern State of Israel's theater of war in the Eastern Mediterranean, which is fundamentally a form of littoral warfare, poses a genuine and tangible threat to the possibility of attaining sea control, even in a local form, with sea vessels alone.

Overcoming the enemy's coastal defenses demands a different way of thinking from the State of Israel's traditional approach to securing sea control by means of its navy. It requires a multidimensional combat strategy. In other words, sea control must be secured in order to overcome the enemy's capabilities, and this may be done only through a combination of sea-to-shore, air-to-shore, and auxiliary cyber warfare, together with intelligence and control across multiple branches of the military. Such a strategy cannot rely, as in the past, only on naval forces but rather requires action to adapt the State of Israel's overall power, including its maritime power, to secure sea control by doing the following:

- Adapting weapons systems on naval vessels to attack targets on land that threaten this sea control;
- Adapting the defensive weapons systems on these naval vessels against new threats from the direction of the shore;
- Methodologically and operationally implementing a multidimensional and multibranch capability to detect and attack land targets, including for amphibious landings when needed, to project power from the sea;
- Establishing a command-and-control mechanism compatible with this doctrine of multidimensional integration in general, and in the context of attacking land targets in particular.

Thus, ahead of a future conflict on the northern front, the State of Israel will be able to maintain sufficient local sea control, differently from in the past, in a way that will enable it to guarantee its freedom of maritime movement to and from its shores and that will enable it to back up its ground forces with firepower and amphibious landings, to restrict the enemy's ability to threaten strategic assets, and to guarantee victory in land battles — the same victory that was denied to Napoleon in 1799 because of his lack of sea control.

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## Section 6: Crisis Management and Technology in the Maritime Domain

The three articles in this section discuss various aspects of threats and opportunities in the maritime domain and how they may be managed. The first article discusses the need to establish Whole-of-Government frameworks to take in the various organizations involved in Israel's maritime domain, in order to share information and streamline each entity's response time and use of its abilities. The article presents several models of existing frameworks in other countries, and it is possible to learn from their experiences to establish similar frameworks in Israel in order to improve the nation's readiness for emergencies in the maritime domain and ability to handle them better and more efficiently. The second article provides an overview of the threat of cyberattacks against maritime platforms and explores how states can and must prepare for them. It presents the full scope of the threat and the damage that cyberattacks on maritime platforms can inflict, and it proposes solutions that would be hugely expensive but are required for effective and proper cyberdefense, in order to put them into practice and not leave them as mere recommendations. The third article discusses the economic, regional, and strategic opportunities for Israel in the present era in the field of ship construction. Israel can develop, for example, unmanned surface vehicles and autonomous ships. Israel enjoys a technological advantage in many fields that may be leveraged for the economic development of the country in general and of the Haifa and northern region in particular, and to enhance Israel's soft power in these fields. Such a "blue economy" could foster regional cooperation. On a strategic level, Israel has an opportunity to shake off its "maritime blindness" and create the conditions to boost its influence on the international stage.





## Whole-of-Government Frameworks for Maritime Security

*Eleanor Dayan*

On the morning of February 17, 2021, the State of Israel woke to a large-scale ecological disaster when thousands of tons of tar spilled to its shores, in an event that was known in Israel as "Zefet Ha'seara" (literally translated to English as Tar of the Storm), known worldwide as the 2021 Mediterranean oil spill.<sup>1</sup> Preliminary investigations indicated that the tar originated from a vessel sailing off coast of Israel, which was considered as the prime suspect. However, since the event no one took responsibility for the damage to the ecosystem and the cleanup expenses. Consequently, the Israeli Minister of Environmental Protection (at the time), Gila Gamliel, instructed the Sea Pollution Prevention Fund to use its budget to finance the emergency clean-up operations.<sup>2</sup> On the second day of the event, hundreds of experienced teams and volunteer groups arrived at Israeli beaches to minimize the damage for the 160 km strip as much as possible. Several of the volunteers were hospitalized due to intoxicated tar fumes, which was only one of the oversights in the event.<sup>3</sup> Minister Gamliel claimed that since 2008, the government has neglected to legislate a national response and preparedness program for marine pollution, which includes NIS 15 million to establish a maritime intelligence monitoring system to alert against sea pollutions. Moreover, the legislation would require local authorities to prepare for sea pollutions with proper equipment and additional staff for the responding teams. In May 2021, a memorandum regarding those issues was published and closed for comments, but has not been discussed in the Knesset since.<sup>4</sup> To add insult to injury, the investigation of the event revealed that on February 11 (six days before the tar arrived on the shores), international agencies had already spotted the massive oil spillage merely 50 km from the coast of Ashdod.<sup>5</sup> It was discovered by a European Union Space Agency satellite. Although not a member of the European Union, Israel could have purchased the

1 Shani Ashkenazi, "[From the North to Rishon LeZion: Big Amounts of Tar Spill to Israel's Shores](#)", *Globes*, February 17, 2021 (Hebrew).

2 Shani Ashkenazi, "[Black Ecological Disaster: Tar Spill to Israel's Shores, Cleaning Operation Began](#)", *Globes*, February 18, 2021 (Hebrew).

3 Carmel Libman, "[Tar Pollution in Israel's Shores: Several Hospitalized, Ecological Emergency](#)", *N12*, February 20, 2021 (Hebrew).

4 Ilana Curiel, "[Knesset's Report: Israel is Not Prepared to Sea Pollution](#)", *Ynet*, February 28, 2022 (Hebrew).

5 Yuval Bagano, Moshe Cohen, "[The Ecological Disaster at the Shores: After the Damage, Now the Many Failures Are Revealed](#)", *Ma'ariv*, February 21, 2021 (Hebrew).

satellite services or even develop its own capabilities.<sup>6</sup> A channel 13 News investigative report revealed that out of the ten suspected tankers, the one with the highest probability of being responsible to the event was involved in a similar incident in 2008 in an oil spill off the coast of Denmark.<sup>7</sup> This example demonstrates that such events could be better managed with the proper information and resources.

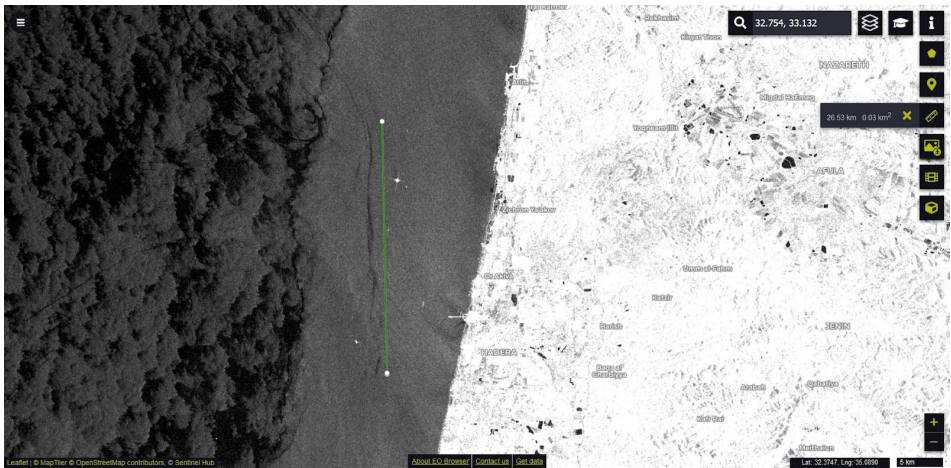


Figure 1: Satellite photo of the 26.4 km long tar spillway, approximately 10 km from Hadera.<sup>8</sup>

The pursuit after maritime security is confronted by high complexity of threats at sea due to wide variety of possible scenarios which require extensive information gathering capabilities and effective response procedures that can coordinate between large number of stakeholders. This article discusses whole-of-government frameworks for maritime security; an approach designed to oversee threats and challenges, optimize responses to events, and coordinate them between relevant organizations. In practice the approach is realized in its core a specialized governmental unit that operates independently or under one of the government's ministries. First, I'll provide the theoretical background for a whole-of-government framework for maritime security. Second, I'll present examples from around the world, specifically it will present the frameworks of the United Kingdom, Singapore, Australia, and New Zealand. Lastly, I'll examine the importance of a framework

<sup>6</sup> Anat Roe, "[The Tar Disaster in the Shores: Israel Could Have Prevented Some of the Damage](#)", *Calcalist*, February 21, 2021 (Hebrew).

<sup>7</sup> Yoav Zehavi, Chen Beyar, "[One of the suspected ships in the pollution was involved in a major oil leak 13 years ago](#)", *Kan*, February 22, 2022 (Hebrew).

<sup>8</sup> Illustration source: Sue Surkes, "[Satellite images of oil slicks off coast show recent spill far from a one-off](#)", *The Times of Israel*, February 28, 2021.

in a case study of Israel, and determine which of the principles and lessons from the other case studies decision makers should consider when designing such frameworks.

## Whole-of-Government Frameworks for Maritime Security – Theoretical Background

There is no single definition for maritime security. It can be interpreted as the absence of threats in the maritime domain, including terrorism, disasters, accidents, illegal trade, and environmental damage. It can also be defined as an aspiration for the stable order of the sea, or as the sum of actions such as protecting ships, ports and the marine environment.<sup>9</sup> One thing is clear though, achieving it and dealing with threats require the participation and cooperation of many organizations (government, private and international), broad knowledge of multiple issues, and the ability to respond quickly to complex events. In this complicated reality where many players have to participate in order to bring about a desired result, a body that can manage or at least coordinate such joint efforts is required.<sup>10</sup> The process of confronting maritime security threats should include four stages: identifying events and threats in real time; monitoring, assessing and knowledge sharing regarding the situation as it develops; deploying quick response forces and resources; and lastly, assessing the damage and forming a restoration plan.<sup>11</sup> Each of the stages requires collection and verification of information, coordination between several entities, an understanding of the legal and political circumstances, ability to plan and execute initial response, and drawing conclusions and implementing them in relevant organizations. A whole-of-government framework for maritime security is designed to achieve all of these.

The complex nature of maritime security threats raises some unique issues. Even though a head of state or a parliamentary committee can direct and coordinate responses in a way that serves the interests of the state, it cannot be expected of them to get immediately involved in each case and security issue, such as handling detainee and detained cargo cases, collecting evidence, contemplating the right to board a ship at sea, or designing press releases. This problem stems from the increasing speed of that the transformation of information that could change policy. The amount of information and the need to

<sup>9</sup> Christian Bueger, "What Is Maritime Security?" *Maritime Policy*, 53, no. 1 (2015): 161–164.

<sup>10</sup> Duane M. Smith and Thomas C. Fitzhugh, *International Perspectives on Maritime Security* (Washington D.C: Department of Transportation, 1996), 1–4; Brett Doyle, "Lessons on Collaboration from recent conflicts: The Whole of Nation and Whole of Government Approaches in Acting", *Inter-Agency Journal*, no. 1, (2019), 105–122.

<sup>11</sup> Ido Ben-Moshe and Ehud Gonen, "[Sea pollution: How to prevent the next disaster](#)", *The Geostrategic Series* (Haifa: Chaikin Chair for Geostrategy, University of Haifa, 2022), 61–67 (Hebrew).

disperse it quickly, along with the intricacy of the events in the maritime domain means that first responders are sometimes unable to share real time information from the field up in the hierarchal chains fast enough with the responsible decision-making authorities. Hence, an organization which can fill this gap is required. The increasing need for broad knowledge and different respond expertise regarding situations such as fuel leakages or other materials, piracy, damage to energy infrastructure, or illegal trading, fishing, and immigration, has worsened the problem, and without existing protocols to coordinate the responding efforts, misinformation and inefficiency may result in repeating past mistakes.<sup>12</sup> As written:

"No single agency owns maritime security or can manage their specific maritime threats without the support of other agencies and stakeholders such as the community and industry. Our ability to understand, engage with partners, and prevent and respond to maritime threats is built upon the foundation of a cohesive multi-agency approach that draws together and utilises the full range of national capabilities."<sup>13</sup>

This Whole-of-Government Approach (WGA), also known as "Comprehensive Multi-Agency Approach" is intended to combine joint efforts of government organizations in order to fully utilize resources in a coordinated response to events. At the center of the approach there is the understanding that without cooperation and coordination every organization will only focus on its own interests and goals. The integration of information and capabilities will allow more response options, efficiency, and less dependence on certain entities (like the Navy).<sup>14</sup> This approach aims to improve effectiveness by integrating knowledge, resources, and capabilities of various organizations. Moreover, WGA leads to a systematic understanding of the complexity of threats, and therefore assigns experts from different fields to respond to them. The shared use of resources and information is intended to reduce costs and increase efficiency.<sup>15</sup> A Whole-of-Government Framework (WOGF) integrates entities within the government and responds to several challenges, among them, achieving maritime operational capabilities, increasing responding organizations' resources, holding discussions, coordinating efforts and decision making

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<sup>12</sup> Brian Wilson, "The complex nature of today's maritime issues: why whole-of-government frameworks matter", In Joachim Krause and Sebastian Bruns (eds.), *Routledge Handbook of Naval Strategy and Security* (New York: Routledge, 2016), 153–156.

<sup>13</sup> Ministry of Transport, "[Maritime Security Strategy](#)", New Zealand Ministry of Transport, December 2020.

<sup>14</sup> Terry A. Fellows Jr & Jason L. Percy, *A whole of government approach for national security*, 4 (MBA professional report, Naval Postgraduate School, Calhoun, 2009), 17–19.

<sup>15</sup> Andrea Baumann, *Whole of Government: Integration and Demarcation* (Center for Security Studies, ETH Zurich, 2013), 1–4.

between ministries in the government and outside it, and establishing procedures for collecting and verifying information. An existing crisis management procedure allows security organizations, both governmental and non-governmental, to prepare responds to events, compensate for early event uncertainties, document the lessons learned, and implement them in organizational procedures afterwards.<sup>16</sup>

The success of the multi-agency approach relies on effective maritime security system enablers.

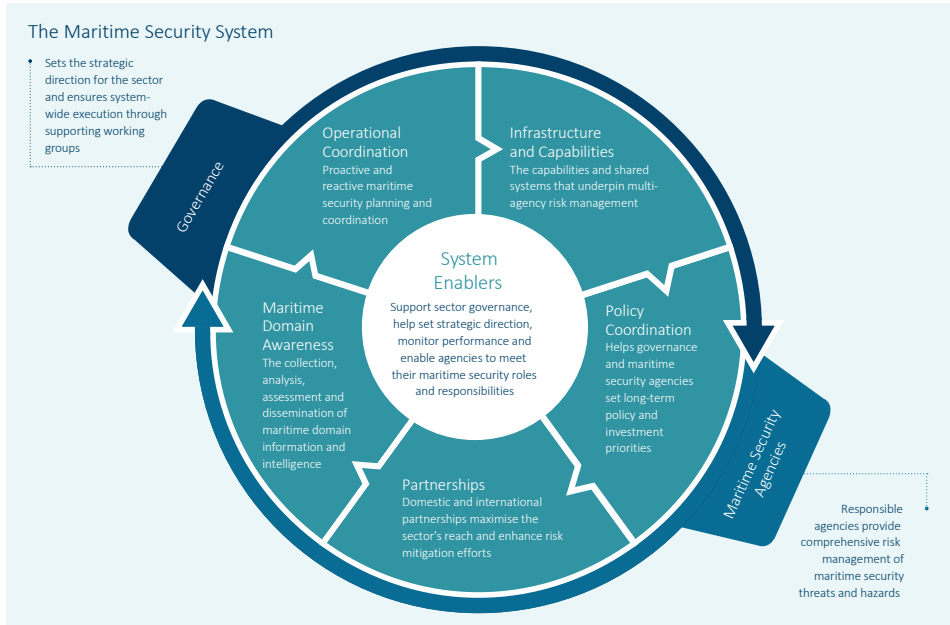


Figure 2: Maritime Security WGA in New Zealand.  
(Source: [Maritime Security Strategy 2020](#))

## Whole-of-Government Frameworks for Maritime Security Around the World

Dealing with complex threats to maritime security is fairly new and it has been developed in recent years, along with the information age and its increased flow of data. Since the beginning of the 21st century, governments around the world started establishing WOGF for maritime security, and as it turns out, the two main reasons for their existence in these countries are the size of their maritime domain and its national importance. Notably, the framework's role in each country is different and determined by the threats, constraints, and unique characteristics of each domain. I will start by introducing Singapore as an

<sup>16</sup> Wilson, "The complex nature of today's maritime issues", 2016.

example of a small state, functioning as an island nation (its main gateway to the world is by sea or air, especially for importing and exporting of trade), much like Israel, and with similar economic capabilities. I'll focus on the center's ability to gather information in the complex space of the Singapore Strait. Following, I will discuss the case of the United Kingdom as a country, whose maritime domain has immense importance for centuries, but its Maritime Security Coordination Centre was established only in 2020. I will examine the organizational position of the framework as a jointly budgeted and staffed governmental entity. And finally, I will present a comparison of New Zealand and Australia and examine authorization issues of the framework as a coordinator, on the one hand, and an operational maritime security organization, on the other.

### *Singapore*

At the heart of Singapore's National Maritime Security System stands the Singapore Maritime Crisis Centre (SMCC). Established in 2011, it coordinates its activities through the Crisis Management Group which is led by the Commander of the Navy. The Centre operates under the authority of the secretary generals of the ministry of defense and the ministry of interior under the Homefront Crisis Executive Group. The SMCC optimizes interoperability between various organizations by assessing and reporting on potential threats, planning crises responses, managing and supervising operations in real time, developing capabilities, and conducting training. The center stands on three pillars: The first is a body of representatives from various maritime organizations, including the Singapore Navy, the Maritime and Port Authority of Singapore, the Immigration and Checkpoints Authority, the Police Coast Guard, and Customs. The center went fully operational in 2013 and since then coordinated with intelligence agencies, think tanks, and shipping companies.<sup>17</sup> The second pillar is the National Maritime Sense-making Group (NMSG), which uses artificial intelligence and multi-sourced data analysis to create security profile of every vessel passing through Singaporean maritime domain, and identifies potential threats, anomalies, and suspicious behavior. The system is linked regularly to databases of intelligence services, shipping companies, and organizations in the shipping sector. The group shares these assessments with the relevant authorities who in turn verify the information and inspect the vessel.<sup>18</sup> The third pillar is the National Maritime Operations Group (NMOG), which conducts training, writes protocols, and analyzes lessons learned to improve performance and coordination during a crisis or a threat. At such a time or during simulations, the center will coordinate the methods of

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<sup>17</sup> Ministry of Defense, "[Fact Sheet: Singapore Maritime Crisis Centre \(SMCC\) and Launch of SMCC Next-Generation Maritime Sense-making System](#)", *MINDEF Singapore*, November 12, 2021.

<sup>18</sup> *Ibid*; Nicholas Lim & Chong De Xian, "Maritime Sense-Making and The Role of Big Data Analytics for Enhancing Maritime Security", *PONTER Journal* (September 2020).

response and prevention between the Maritime Security Task Force of the Singapore Navy and the relevant organizations.<sup>19</sup>



Figure 3: Singapore's foreign affairs and defense committee visits the Singapore Maritime Crisis Center (SMCC). (Source: *MINDEF Singapore* 2014)<sup>20</sup>

Among the notable threats that the center identified and intercepted was the 2014 identification of a crew member who was listed on two ships destined to enter Singapore the same day. With threats of an attack by a faction of ISIS in Sri Lanka in the background the NMSG shared the information and thus prevented his entry.<sup>21</sup> In 2015, the AI system identified a potential ISIS supporter on board a tanker destined to the port of Singapore, who as a result was forbidden to leave the ship. In 2016, the Centre identified a suspicious ship, the Police Coast Guard detained the ship and found smuggled goods aboard it. One of the crew members was arrested following the incident.<sup>22</sup> The main aspect to be learned from the Singapore case study is the ability to collect quality information through framework procedures. The Singapore Strait is the busiest sea passage in the world and the port of Singapore is the second busiest. An average of 1,000 vessels sails the 1,067 square kilometers of Singapore's Exclusive Economic Zone at any given time, and a vessel enters or leaves every two to three minutes. The ability to get a clear picture of what is

<sup>19</sup> Ministry of Defense, "[Fact Sheet: Safeguarding Singapore's Maritime Security](#)", *MINDEF Singapore*, June 30, 2017.

<sup>20</sup> News Releases, "[Government Parliamentary Committees Visit Singapore Maritime Crisis Centre](#)", *MINDEF Singapore*, April 22, 2014.

<sup>21</sup> Joseph Franco & Romain Quivoij, "[Terrorist Threats from the Maritime Domain: Singapore's Response](#)", *RSIS*, No. 197, October 10, 2014.

<sup>22</sup> Ministry of Defense, "Fact Sheet", 2017.

happening in the maritime domain and to react to threats on time is a central pillar of the whole-of-government approach for maritime security.<sup>23</sup>

### *The United Kingdom*

The importance of maritime security, whether it is for international trade, economic growth, or global law and order, is nothing new to the United Kingdom. The National Strategy for Maritime Security (NSMS) from 2014 recognizes that maritime security deals with diverse issues and not only naval superiority, and outlines for the first time in British history the importance of a whole-of-government approach. The Joint Maritime Security Centre (JMSC) was established in 2020 as part of the effort to coordinate between the National Maritime Information Centre (NMIC) and the Joint Maritime Operations Coordination Centre (JMOCC). The JMSC is the interorganizational executive body that implements the whole-of-government framework for maritime security in the UK, and is responsible for maintaining maritime knowledge, responding to security threats, and conserving the marine environment.<sup>24</sup>

The Centre's main tasks are to raise level of preparedness for maritime threats and to coordinate government responses. It is led by a team of representatives from the Royal Navy, the Ministry of Defence, the Border Force, the Marine Management Organization (MMO), with the Centre's board of directors above them. The JMSC coordinates other government authorities as well, including the Ministry of Transportation, the Foreign, Commonwealth and Development Office, the Ministry of the Interior, British Customs, the British Coast Guard, the National Crime Agency, the Counter Terrorism Police, and Maritime Scotland. The JMSC provides a number of services to the British government and other organizations, such as collecting and analyzing security information and constructing a coherent picture of the occurrences in the maritime domain; planning and coordinating responses between organizations, their assets, and their capabilities. Similar to the Singaporean model of whole-of-government framework, the British Centre consists of three components; the executive team that was mentioned before; the National Maritime Information Centre (NMIC), established in 2017, provides data analysis, intelligence and crisis management to maximize the capabilities of operational responders; and the Joint Maritime Operations Coordination Centre (JMOCC) that monitors the United Kingdom's maritime domain around the clock using advanced technologies and a team of

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<sup>23</sup> Nicholas Lim and Chong De Xian, "Maritime Sense-Making and The Role of Big Data Analytics for Enhancing Maritime Security", *Pointer, Journal of the SAF*: 1–10 (September 2020).

<sup>24</sup> Scott Edwards, "[The United Kingdom's Conceptualization of Maritime Security](#)", *Asia Maritime Transparency Agency*, March 4, 2022; Cristian Bueger, Timothy Edmunds & Scott Edwards, "[Innovation and New Strategic Choices](#)", *The RUSI Journal*, 166, no. 4 (2021): 66–75.



government representatives that identify threats and incidents at sea, and coordinate naval and aerial responses.<sup>25</sup>

In addition to information gathering and a variety of resources and capabilities, the British Centre is unique for its independence from any ministry or other government authority. The Centre is jointly staffed and budgeted by organizations sharing its maritime space objectives, including the Royal Navy, the MMO and the Ministry of Defence. This allows each of the organizations to work in equal conditions resulting in improved cooperation and coordination in those situations that are coordinated or managed by JMSC.<sup>26</sup> For example, the Royal Navy annually purchases satellite-based intelligence services from Airbus for the JMSC, providing the Centre with a broad maritime domain awareness of the British waters, therefore allowing quick responses to possible threats.<sup>27</sup> Although independence from any particular ministry seems like an organizational mess, interestingly enough, having been established relatively late, the British Centre chose to set the framework in that order, after considering lessons from previously established centers.



Figure 4: The Thai Ambassador to the UK visits the JMSC.  
(Source: Royal Thai Embassy, London 2021)<sup>28</sup>

<sup>25</sup> HM's Government, "[Joint Maritime Security Centre](#)" (Accessed August 6, 2022).

<sup>26</sup> Scott Edwards, "[Safe Seas Visits UK's Joint Maritime Security Centre](#)", *Safe Seas*, October 12, 2021.

<sup>27</sup> Press release, "[Airbus to provide satellite-based maritime surveillance services for the UK Royal Navy](#)", *Airbus*, June 28, 2021.

<sup>28</sup> "[Thai Ambassador visited the Joint Maritime Security Centre and National Maritime Information Centre in Portsmouth](#)", *Royal Thai Embassy, London*, September 8, 2021.

### *New Zealand and Australia in Comparison*

A review of the government of New Zealand from early 2001 that examined the necessary resources required for military and civilian organizations to operate in the maritime domain found that ten different government authorities were patrolling the seas independently, each one with its own interest at hand – a fact that prevented the effectiveness of information gathering in a national perspective. That same review recommended the establishment of a maritime coordination center that will manage and coordinate the country's resources and responsibilities in the maritime domain and will identify constitutional gaps that prevent effective gathering of information or patrolling the seas. The subsequently established center currently consists of a mixed team of armed forces staff and government officials, and acts as an independent body with its headquarters in a military base. The National Maritime Co-ordination Centre (NMCC) was established in 2002 and is currently budgeted by the Ministry of Customs.<sup>29</sup> In addition to efficient management of patrolling vessels, the NMCC collects data for systems such as automatic identification, long-range identification and tracking, vessel monitoring, customs data and geographic data from civil and government providers, combined with the data collected by the military.<sup>30</sup> The center uses a Maritime Anomaly Indication and Alerting tool to analyze information collected from thousands of vessels simultaneously and warn of suspicious behavior.<sup>31</sup> The center then passes the information to the Navy, the operating authority at sea.

Many changes in naval security occurred in Australia post 9/11, the most important of which is the establishment of the Border Protection Command in 2005. It was renamed the Maritime Border Command (MBC) in 2015, when it was subjugated to the Australian Border Force (ABF), then the newly law enforcement administration of the Australian Department of Home Affairs.<sup>32</sup> As it represents the whole-of-government framework for maritime security in Australia, the MBC is designed to identify, deter, and respond to

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<sup>29</sup> Office of the Auditor-General, "[Effectiveness of arrangements for Co-ordinating civilian maritime patrols](#)", *Controller and Auditor-General*, April 12, 2010.

<sup>30</sup> Chris Rahman, "Maritime Domain Awareness in Australia and New Zealand", in Natalie Klein, Joanna Mossop & Donald R. Rothwell (eds.), *Maritime Security: International Law and Policy Perspectives from Australia and New Zealand* (New York: Routledge, 2009), 202–223.

<sup>31</sup> The Defense Technology Agency – DTA, "[Maritime Domain Awareness](#)" (Accessed September 12, 2022).

<sup>32</sup> Donald Rothwell and Cameron Moore, "Australia's Traditional Maritime Security Concerns and Post 9/11 Perspectives", in Natalie Klein, Joanna Mossop & Donald R. Rothwell (eds.); *Maritime Security: International Law and Policy Perspectives from Australia and New Zealand* (New York: Routledge 2009), 37-53.

non-military threats, and prevent illegal activity in the maritime domain by using civilian vessels and aircrafts.<sup>33</sup> The center engages with illegal trade or immigration, exploitation of natural resources, marine pollution, terrorism, piracy, and fuel leakages. Other than cooperating with the Australian Navy and coordinating teams and vessels of the ABF as the operations command and crisis manager, the center also collects maritime information using the Australian Maritime Identification System.<sup>34</sup>

The main difference between the frameworks of Australia and New Zealand (as well as the other examples given in this article) is the ability to operate independently. In the case of Australia, the center is directly assigned with vessels, aircrafts, and response teams from the Australian Army and Navy on a regular basis, while in New Zealand, the Centre depends on other organizations (The Navy mainly) to act upon gathered information. Hence, the Australian Centre is capable of conducting command and coordination activities while the Centre in New Zealand is capable of conducting only coordination ones.<sup>35</sup>



Figure 5: Vessel assigned to MBC (Source: [shipshub.com](http://shipshub.com))

## Whole-of-Government Framework for Maritime Security in Israel

The 2021 Mediterranean oil spill highlighted the lack of a unified government effort to collect information and respond to maritime domain incidents, but the issue is misunderstood by the decision-makers and is still not prioritized. Despite the economic and security importance of the maritime domain to Israel, there is no national organization

<sup>33</sup> Australian Border Force, "[Maritime Border Command](#)" (Accessed September 12, 2022).

<sup>34</sup> Department of Immigration and Border Protection, "[Maritime Border Command](#)" (Accessed September 12, 2022).

<sup>35</sup> Michael Blades, "[Focusing New Zealand's approach to maritime domain security](#)" (Unpublished thesis, Massey University, New Zealand, 2014).

that coordinates and responds to maritime incidents. The Israel Navy is equipped to protect the country's national security against armed threats but is unauthorized to manage non-national security scenarios, whether they be disasters, accidents, pollution, or illegal smuggling, trading, or fishing. While the issue of securing energy facilities from external threats did receive attention, the rest of the wide array of threats to the maritime domain and marine environment got pushed aside. Currently, the question of authority remains unclear and the responsibility for maritime security is divided between nine government agencies, a reality that creates many potential gaps for a unified action. The inability to determine who should respond to an incident, who should receive the necessary information to assess an appropriate response, or who should coordinate between organizations, is preventing an understanding of the bigger picture in the Israeli maritime domain, and consequently leads to ineffective utilization of government assets.<sup>36</sup>

Assuming that a whole-of-government framework for maritime security is considered by decision-makers to be of vital importance to the State of Israel, and as part of a larger effort to shape a national maritime strategy,<sup>37</sup> there are two lessons to be taught from the case studies presented in this article. The first is the importance of a comprehensive multi-sourced information system. Sources can be, for example, databases, research and academic institutes, open sources like internet databases, and also collaborations with government authorities and international organizations, and service providers like photography and satellite image analysis (as seen in the case of the United Kingdom). Additionally, there is a need for a platform to analyze, manage, and verify data, using Artificial Intelligence engines in order to produce an overall picture of the maritime domain. This issue was discussed in the *Maritime Strategic Evaluation for Israel 2021/22*, where it was shown that existing monitoring technologies are required to maximize the safety of the citizens and the maritime domain.<sup>38</sup> Furthermore, an apparatus that will coordinate between responding organization during an event, and plan ahead courses of action for possible scenarios is essential. According with the framework's goals and other limitations, some of the organizations that are expected to participate in these efforts are: the Israel Navy, the Israeli Police, the Ministry of Defense, the Ministry of Environmental Protection, the Nature and Parks Authority, the Ministry of Energy,

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<sup>36</sup> Sue Surkes, "[Experts: Israel has 'no strategy' for managing 'lifeline' Mediterranean Sea](#)", *The Time of Israel*, November 25, 2021; Shaul Chorev, "[Israel must increase its maritime awareness in light of recent oil spill](#)", *The Jerusalem Post*, March 1, 2021.

<sup>37</sup> Further reading: Oded Gour Lavie, [A Model and Methodology for a Grand Maritime Strategy](#), Maritime Policy and Strategy Research Center, University of Haifa, June 2018.

<sup>38</sup> Semion Polinov and Shaul Chorev, "[A Model for an Israeli Academic Marine Monitoring System](#)", in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy and Strategy Research Center, University of Haifa, 2022), 333–345.

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the Ministry of Transportation, the Ministry of Justice, Israel Port Authority, shipping companies, the Society for the Protection of Nature, coastal municipal authorities.

The second lesson discusses authority. The case studies in this article describe two types of frameworks, one that is capable of assigning resources, equipment, and personnel, and is able to respond to maritime threats and incidents independently (Australia), and another that only manages the accumulation of information and the coordination of resources. The first type grants authority to the framework and an ability to proactively contribute to maritime security, while the second offers streamlining and coordination between organizations but doesn't change the existing hierarchy. This issue also relates to the framework's budgetary and hierarchical independence. The decision-makers must decide if the framework is budgeted by a specific government ministry and managed by it or operates independently and jointly budgeted by the participating organizations. The first option associates the center's activities with a specific government ministry, but would bring stability to its efforts, while the second divide the costs of the framework between the contributing organizations and create equal working conditions, the same way the British center operates.

Where might be the place of a framework in the government system and how would it look like? First, a maritime security coordination center is the core of whole-of-government framework for maritime security. This center should be oriented by the cabinet and the maritime strategy simultaneously, and its actions to be overseen and evaluated by one of the Knesset's committees. The framework (and its coordination center) requires a managing team consisted of a director, representatives from the organizations essential to the center's activities (i.e., the Navy), and the groups that conduct the rest of the center's activities. The case studies teach us that one of the groups will need to assign a team to collect maritime data. The data will be forwarded to an analysis team that will update the maritime domain status, using data management systems. In addition, because the amount of accessible information is growing regularly, a third team will be charged with developing tools for verifying and analyzing that information. The second group will coordinate and manage operations and responses which include representatives from all relevant organizations. The group, alongside the management team, will prepare respond options, coordinate events and exercises, and evaluate them afterwards. The center's staff will also be involved administratively, operationally, or any other way.

In conclusion, the article introduced a whole-of-government approach for maritime security and presented countries that implemented such frameworks as part of their maritime strategy. The importance of a framework to Israel was also examined. Even though the maritime domain is more significant to those countries that currently have a WOGFs in comparison to Israel, it is still important to note that a WOGF is designed

to optimize the country's maritime security efforts, regardless of the nature of the threats. The information age presides new challenges; dealing with an enormous amount of information and a need to analyze it quickly; dealing with complicated challenges that require the intervention of many organizations; and the increased dependence on the maritime domain. As a result, new ways to face those threats are necessary. The whole-of-government framework is designed to respond to these threats and changes, and therefore the demand for such a framework and its implementation is increasing worldwide, including in Canada, the United States, India, Japan, the Philippines, Sweden, the Republic of Cabo Verde, the United Kingdom, Australia, Singapore, and New Zealand.<sup>39</sup>

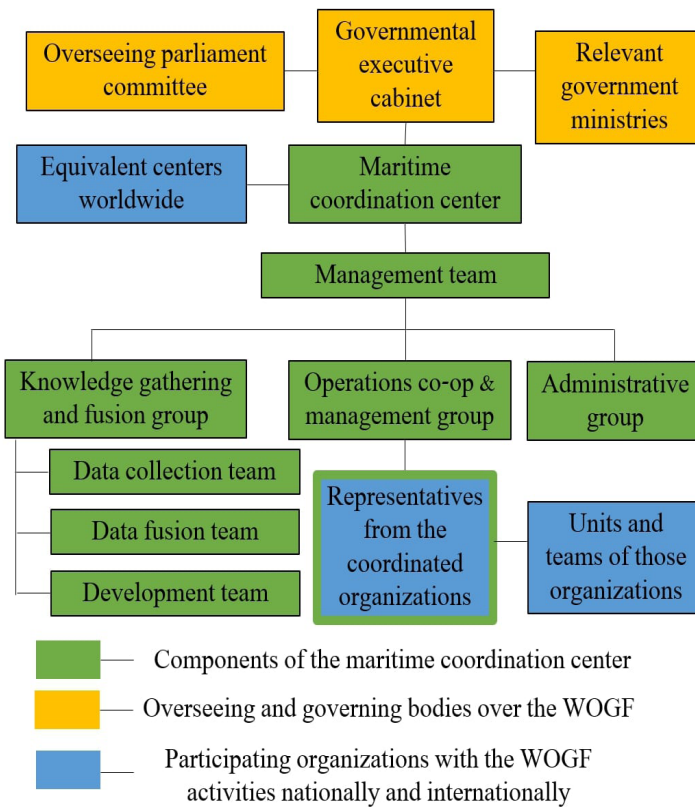


Figure 6: A proposal for an organizational structure of a whole-of-government framework for maritime security.

<sup>39</sup> Wilson, "The complex nature of today's maritime issues", 2016.

## Cyber Threats to Maritime Platforms and Insights from Coping with the Covid-19 Pandemic

*Itai Sela*

### Introduction

The process of reducing Europe's dependency on Russian energy supply, as a result of the war between Russia and Ukraine, and the recent gas discoveries off the coast of Israel, have put maritime platforms based on operational technology (OT) systems on the public agenda in Israel and around the world, marking them as a high-quality target for cyberattacks with widespread strategic, security, economic, environmental and state-related implications.

Since the outbreak of the Covid-19 pandemic, the use of the cyber-weapon on operational technology systems have expanded, for example, Microsoft has reported more than 200 cyberattacks, with more than 40% of them targeting operational networks and critical infrastructure.<sup>1</sup> A 2021 summary FBI report additionally indicates approximately 649 ransom attacks, causing damage to organizations related to critical infrastructure in the United States;<sup>2</sup> the discovery of the Incontroller/Pipedream malware which was designed to damage OT systems and has a rare and particularly dangerous attack capability (it is estimated to be a state-sponsored software development);<sup>3</sup> an attack using the "Ekans" ransomware that targeted OT systems;<sup>4</sup> a cyberattack – against commercial satellite communication networks (SATCOM Network);<sup>5</sup> a widespread cyberattack that damaged OT systems at oil terminals in Western Europe (the Netherlands, Belgium and

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<sup>1</sup> Ravie Lakshmanan, [Microsoft Documents Over 200 Cyberattacks by Russia Against Ukraine](#), *The hacker news*, April 29, 2022.

<sup>2</sup> Federal Bureau of Investigation, [Internet crime report 2021](#), FBI IC3, 2022.

<sup>3</sup> Nathan Brubaker, Keith Lunden, Ken Proska, Muhammad Umair, Daniel Kapellmann Zafra, Corey Hildebrandt, Rob Caldwell, [Incontroller: New State-Sponsored Cyber-attackTools Target Multiple Industrial Control Systems](#), *Mandiant*, April 13, 2022; [Pipedream: Chernovite's Emerging Malware Targeting Industrial Control Systems](#), *Dragos*, Free whitepaper, April 2022.

<sup>4</sup> Scott Ferguson, [New Ransomware Targets Industrial Controls: Report](#), *Info risk today* February 5, 2020.

<sup>5</sup> Antony J. Blinken, [Attribution of Russia's Malicious Cyber Activity Against Ukraine](#), U.S. Department of State, May 10, 2022.

Germany),<sup>6</sup> an attack on a drilling company that operates offshore drilling rigs;<sup>7</sup> and an attack on a manufacturer of maritime OT systems.<sup>8</sup>

This article analyzes the cyber threats to civilian maritime platforms while addressing the unique cyber-related characteristics and vulnerability of OT systems, located on maritime platforms. This article attempts to answer obvious questions which arise in this context: Is this a significant threat? And if so, is it possible to implement the strategies of coping with the Covid-19 pandemic when addressing maritime cyber threats?

## Background

Over the past four decades, there has been considerable progress regarding the technologies used on maritime platforms (commercial vessels, passenger ships, drilling rigs, production platforms, etc.) – from platforms built in the early 1980s, and based on relatively simple technology, through platforms built at the beginning of the 21st century with increasing use of computer-based technologies and up to the platforms built in the last decade, which are almost entirely based on advanced computer technologies, both in terms of Information Technology (IT), and in terms of operational technology (OT).

The IT supports the control and transfer of information between maritime platforms and the company headquarters, various suppliers, seaports and different authorities with which the maritime platforms are in continuous contact. This technology uses satellite, cellular and wireless communication networks in order to transfer information between the maritime platform and the various parties onshore and offshore. The information network computers are usually located on the bridge, in offices and in the various sections and residences on the platform – these systems and networks are separated, by definition, from the OT systems and networks.

The OT serves as the interface connecting humans and machines, thus helping to perform critical operations. On average, there are about 70 operational systems on a maritime platform. These systems are provided and maintained by a variety of manufacturers, run on different types of operating systems (Win XP/7/10, Linux), run diverse applications, require a high level of reliability and availability, and are required to operate continuously 24/7, for most of the year. These systems are operated by maritime crew members who are required to work the platform in shifts around the clock for long periods of time (several weeks to several months, consecutively), and often without appropriate cyber defense training.

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<sup>6</sup> The Editorial Team, [Cyber-attacks hit European oil terminals](#), *Safety4Sea*, February 4, 2022.

<sup>7</sup> KCA Deutag Alpha Limited, [Annual Report and Financial Statements for the year ended 31 December 2021](#), May 12, 2022.

<sup>8</sup> Sam Chambers, [Voyager Worldwide hit by cyber attack](#), *Splash247*, December 9, 2022.



Figure 1 illustrates different types of OT systems installed on maritime platforms, such as the Electronic Chart Display and Information System (ECDIS), which replaces paper navigation charts, optimizes navigation and prevents accidents by locating and presenting geographic information based on digital navigation charts and integration with additional sources of information (objects discovered by RADAR, GPS location, AIS data, depths, etc.); a RADAR (Radio Detection And Ranging) system which allows to create an image of navigational obstacles, assisted by electromagnetic radio waves, the BAMS (Bridge Alert Management System) located on the vessel's bridge helping on-duty officers manage the alerts received from the various systems; MCS (Machinery Control System), used to control, survey and monitor machinery systems such as engines, pumps, stability systems, and dedicated systems such as MPD (Managed Pressure Drilling) pressure control systems; BOP (Blowout Preventer) emergency disconnect systems; the VDR (Voyage Data Recorder) system that serves as the maritime "black box" connected to most of the navigation, machinery and safety systems on board the vessel; Dynamic Positioning (DP) systems, air conditioning, elevators, and various sensors such as GPS (Global Positioning System) and AIS (Automatic Identification System) that feed the various operating systems. The communication between the various systems on the platform is based on a 0183/2000 NMEA (National Marine Electronics Association) communication standard which is used in the maritime industry, and defines standards for electrical signals, protocols, data transfer time and specific formats.<sup>9</sup>

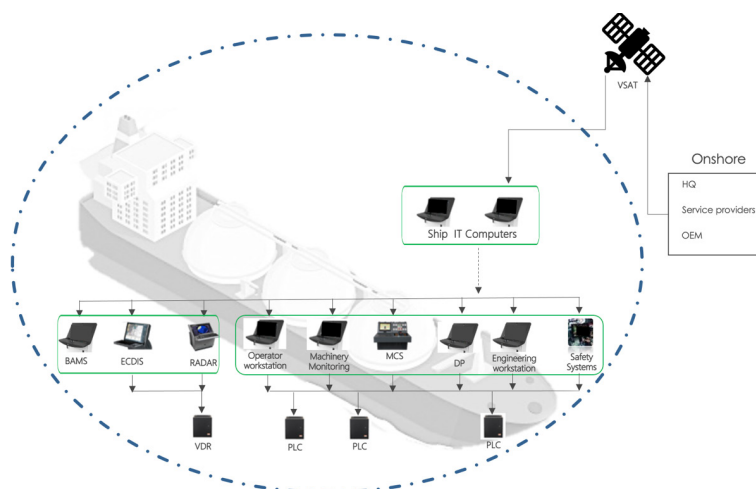


Figure 1: The layout of main OT systems in a commercial vessel

<sup>9</sup> National Marine Electronics Association, [NMEA 2000, standard for serial-data networking of marine electronic devices](#), Version 2, December 2014; Eric S. Raymond, [NMEA Revealed](#), Retrieved December 2022.

## The Unique Aspects of Operational Technology Systems from a Cyber Perspective

Over the past few years, a considerable increase in the use of the cyber weapon against maritime platforms and infrastructure has been observed.<sup>10</sup> The appearance of the cyber weapon, defined by Rid & McBurney as malicious software (malware), used to achieve military or intelligence goals as part of a cyberattack,<sup>11</sup> has made OT systems on maritime platforms extremely exposed and vulnerable to attacks, due to several factors that differentiate them and their environment.

The **first factor** is the fact that OT systems are based on obsolete operating systems (OS), which are not supported by the manufacturers, in terms of security and software updates. One of the main reasons for this is the distinct difference in the life expectancy of the maritime platform, which ranges from 20 to 30 years to the life expectancy of the various operating systems, which ranges from 10 to 20 years, and the life expectancy of the operating systems in OT systems, which ranges from 5 to 10 years. As a result, on most of the maritime platforms active today, the vast majority of the OT systems are based on obsolete operating systems that were developed in an era when awareness to cyber threats was not as advanced, and for this reason contain many inherent cybersecurity vulnerabilities. In addition, these systems are not supported by the manufacturer of the operating systems, for example, Microsoft's "Windows XP" operating system's technical support and security updates ended in April 2014<sup>12</sup> and the "Windows 7" operating system's technical support and security updates ended in January 2020.<sup>13</sup> Recently, the manufacturers of these operating systems began to market new systems based on "Windows 10", which is considered up-to-date and is still supported by Microsoft, but Microsoft has already announced that it will only support this software until October 2025.<sup>14</sup>

The **second factor** is the implications of the upgrade (cost and "standing time"). Although the manufacturers of the OT systems (on average about ten different manufacturers for one maritime platform) prefer and encourage the platform owners to perform a version upgrade every 4 to 6 years, the platform owners do everything in their power to avoid

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<sup>10</sup> F. Akpan, G. Bendiab, S. Shiaeles, S. Karamperidis, & M. Michaloliakos, [Cybersecurity Challenges in the Maritime Sector](#). *Network*, 2, no. 1 (2022): 123–138.

<sup>11</sup> Thomas Rid & Peter McBurney, [Cyber-Weapons](#), *The RUSI Journal*, 157, no. 1 (2012): 6–13.

<sup>12</sup> Eve Blakemore, [Support for Windows XP ends in April 2014](#), *Microsoft*, April 30, 2013.

<sup>13</sup> [Windows 7 support ended on January 14, 2020](#), *Microsoft*, 2020.

<sup>14</sup> [Windows 10 Home and Pro](#), *Microsoft*, 2021.

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these required upgrades and try to maintain and preserve the existing systems. This is because an upgrade of this scope can add direct costs of up to hundreds of thousands of dollars (on a commercial vessel) and up to tens of millions of dollars (on a maritime energy platform) to upgrade the systems themselves, in addition to the implications and costs involved in preparing the platform (stopping activity) for the purpose of the required upgrade. In view of today's market trends, according to which most maritime platforms operate using a "hot platform" method, which means continuous work with the exception of short breaks required for switching over from one contract to another, the prevailing trend in the industry is to only enter into short term contracts. Thus, any stoppage and attempt to implement any kind of system upgrade, which requires stopping activity for a period of two months to a year, will directly and significantly affect the profitability of the maritime platform.

The **third factor** is related to the segmentation of IT and OT communication networks. The communication networks deployed on a maritime platform can be divided into two kinds: IT networks that connect the various information systems and OT networks that connect the various OT systems. The common perception today in the maritime industry refers to the OT systems and networks as segmented and disconnected from the IT network and the Internet, for this reason, these networks are considered to be less exposed to various cyber threats. This, despite the fact that the accepted work practices in the maritime industry expose the networks and OT systems to the IT networks, creating a situation called a "flat network", which allows malware penetrating one network to spread relatively easily to other networks as well as to many critical OT systems on the platform.

The **fourth factor** is the attack vectors that the attackers use to penetrate and damage OT systems onboard maritime platforms. The first vector, as illustrated in Figure 2, is the External Attack Vector, which uses the platform's IT network (which is based on satellite, cellular and wireless communication media) and the many service providers (the company's headquarters, the company that leases the platform, regulatory national and international organizations, technical factors, maintenance, and supply) as a gateway to the OT systems on the maritime platform. After the malware has managed to enter one system on the platform, it will take advantage of the gaps in the segmentation of the networks and will spread relatively easily between the different networks and OT systems. One attack that used this attack vector was reported in February 2017 after a breach was detected in the OT system on a container ship sailing from Cyprus to Djibouti. According to reports, the attack file penetrated the vessel's IT network, gained access to the OT network, took over the vessel's navigation system for about ten hours, and in the process breached the vessel's safety and the crew's ability to operate the systems. According to the incident report, the attackers' intention was to gain full control of the

navigation systems and direct the vessel to an area where they could physically take control of it. Only after assistance from the company's headquarters was the crew able to regain control of the navigational system.<sup>15</sup>

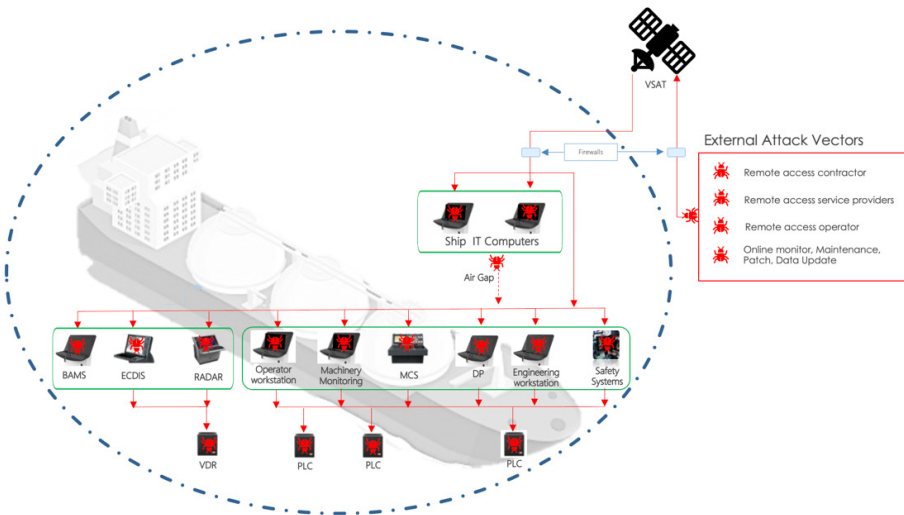


Figure 2: External attack vectors on vessels, and a description of the spread of malware from the IT systems to various OT systems

The second vector, as illustrated in Figure 3, is the Internal Attack Vector, which uses actors with routine activity access privileges to the OT systems (crew members and manufacturers' technicians working onboard), to unintentionally insert the malware from an IT computer into an OT system. Examples of attacks that used this attack vector are: a) In 2013, a cyberattack that succeeded in introducing malware into a shore technician's computer was reported. As part of routine maintenance on a maritime energy platform, unintentionally and unknowingly this technician transferred the malware from his computer to OT systems onboard the rig – an event that led to the shutdown of the rig after it became clear that the navigation systems, propulsion, dynamic positioning (DP) control and drilling systems were significantly damaged.<sup>16</sup> b) In 2018, it was reported that dormant malware was discovered in vessel systems after approximately 875 days. The incident report found that unknowingly and unintentionally, the service provider introduced the malware into the vessel's system using a portable memory drive (USB)

<sup>15</sup> IMO, [International Maritime Organization maritime knowledge centre "sharing maritime knowledge"](#), *Current Awareness Bulletin*, XXIX(11), November 2017.

<sup>16</sup> Zain Shauk, "[Malware on Oil Rig Computers Raises Security Fears](#)", *Houston Chronicle Energy*, February 23, 2013.

during a software update.<sup>17</sup> c) That same year, a technical malfunction was reported in two ECDIS systems on a new cargo ship. These were later discovered to be infected with malware which caused the delay of the ship's sailing, and hundreds of thousands of dollars' worth of damage.<sup>18</sup>

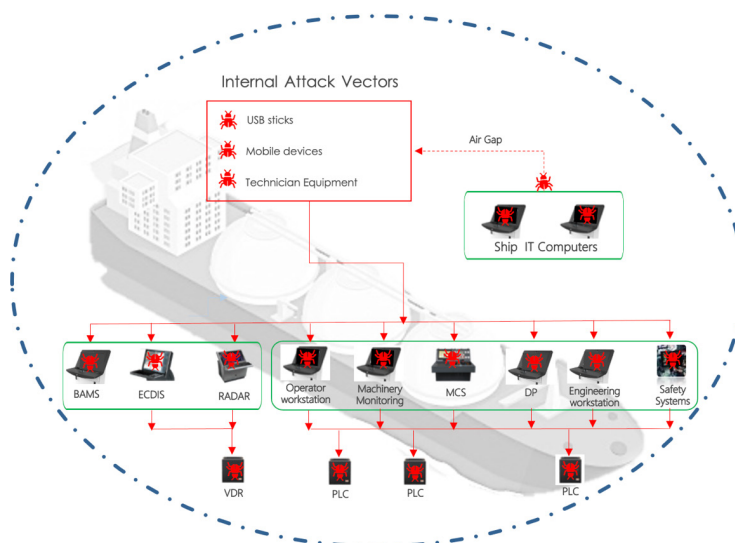


Figure 3: Internal attack vectors in vessels and the spread of malware to all OT systems

## Is the Cyber Threat to Maritime Platforms Significant?

In order to address this question and in addition to collecting published data on cyber-attacks, key findings of several cyber-attack simulations were examined and analyzed here: the first simulation examined the feasibility and significance of a cyber-attack on critical OT systems on board vessels such as RADAR, ECDIS, and MCS.<sup>19</sup>

The second simulation examined the feasibility and significance of a cyberattack on a dynamic positioning system (DP) in an environment simulating a drilling rig.<sup>20</sup>

<sup>17</sup> [The guidelines on cyber security onboard ships](#), Version 4 (2021).

<sup>18</sup> Ibid.

<sup>19</sup> [Northern California area maritime security committee](#), *cyber security Newsletter*, Edition 2018-07, July 2018.

<sup>20</sup> Paola Rossi, Itai Sela, Adam Rizika, Diogenes Angelidis, Mark Duck, and Ron Morrison, [Cyberdefence of Offshore Deepwater Drilling Rigs](#). *Offshore Technology Conference*, Virtual and Houston, Texas, August 2021.

As part of the feasibility of a cyber-attack on a radar system on a naval platform, malware was introduced into the RADAR (OT system), which is used as a navigational safety tool for the purpose of locating and warning of navigational obstacles and preventing collisions. The RADAR system transmits electromagnetic radio waves and displays the returning signals from the navigational obstacles on the RADAR display as a bright spot. The malware introduced into the RADAR system was able to create a manipulation, so that in the RADAR image shown to the navigation officer on the bridge, as can be seen in Figure 4, the navigational obstacles in the vicinity of the maritime platform did not appear (were concealed), and the alerts, which allow the navigation officer to understand that something is wrong, were not displayed.<sup>21</sup>

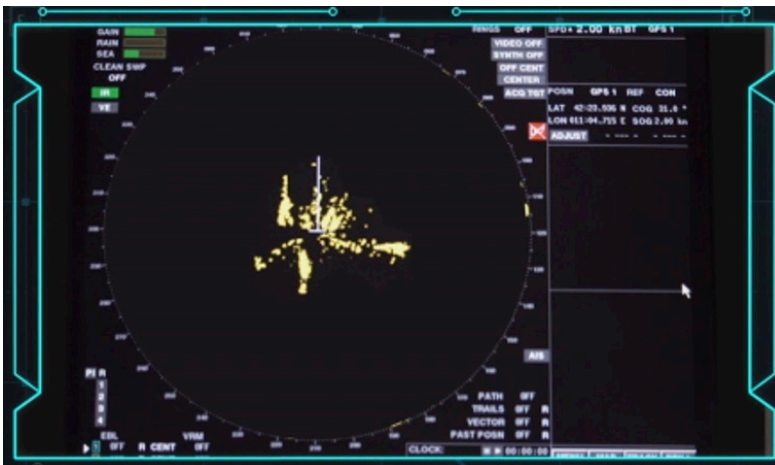


Figure 4: The RADAR display presented to the navigation officer on the bridge

This occurred despite the fact that in practice there were many navigational obstacles in the vicinity of the maritime platform, including those located further along the sailing route, that were concealed by the malware, as can be seen in Figure 5, in the real RADAR image (without the attack manipulation – marked with red circles).<sup>22</sup>

This simulation demonstrates that a cyberattack is capable of manipulating the data presented to the navigation officer and can lead to creating a false image of navigational obstacles, which can end in collision, loss of human life, environmental damage and damage to property.

<sup>21</sup> [Tests Show Ease of Hacking ECDIS, Radar and Machinery](#), *The Maritime Executive*, December 21, 2017.

<sup>22</sup> *Ibid.*

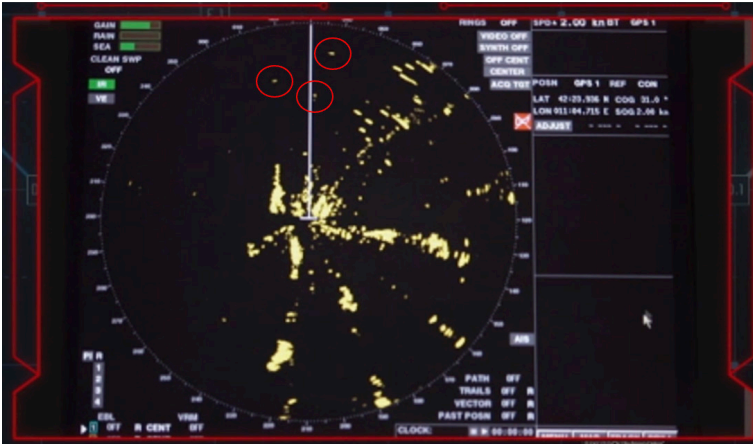


Figure 5: The actual RADAR display that shows the obstacles that were concealed from the navigation officer using manipulation

Figure 6 shows a demonstration of a manipulation attack on a vessel's navigation system (ECDIS), which assists the navigation officer in creating a global plan and sailing route.<sup>23</sup> The left image of this figure shows the system display in which the position of the vessel in accordance with the navigational obstacles and the depth appear to be correct. Yet, as can be seen in the right image, the position of the vessel is different, and very close to the navigational obstacles. It is also apparent that the water depth is shallow and dangerous. This attack aims to present false information to the navigation officer, leading to incorrect decision making regarding the planning and safety of the voyage, to a deviation from the planned route and even to collision.

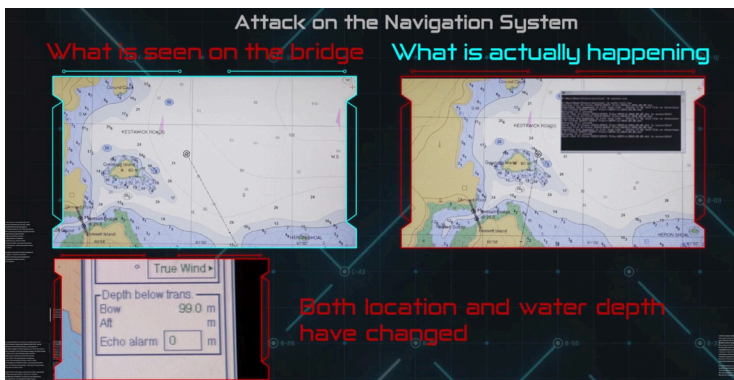


Figure 6: A Manipulation attack on the navigation system (ECDIS)

<sup>23</sup> [Ethical hackers demonstrate weaknesses in shipboard systems](#), *Digital Ship*, January 2, 2018.

Figure 7 shows a demonstration of a manipulation attack on a machine control system (MCS) that controls the vessel's engines, stability systems, balance and other systems that allow the machinery officer to activate and monitor the operation of the vessel's systems.<sup>24</sup> As can be seen from the data on this attack, the left image of the figure shows the machinery control display indicating one running pump, although in practice, as can be seen in the right image, this pump is not working at all, while several other pumps that are shown as turned off – are working without the machinery officer's knowledge. This attack's purpose is to prevent and disrupt critical operations and present false information to the machinery officer, thereby leading to unwanted and uncontrolled emission of liquids and gases, damage to the vessels' control, propulsion and steering systems, which can lead to financial and environmental damage, as well as to the loss of human life.

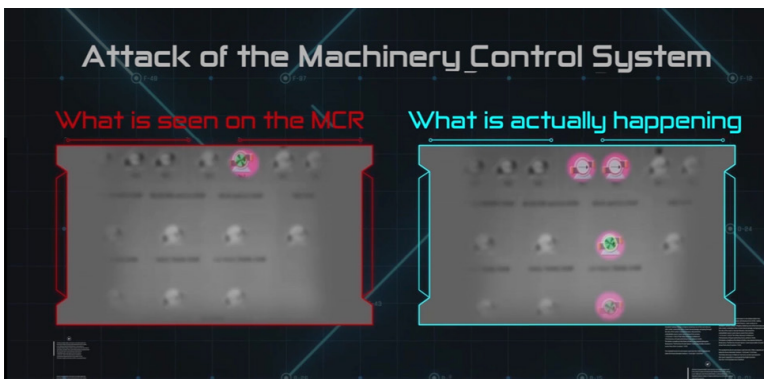


Figure 7: A Manipulation Attack on the Machinery Control System (MCS)

## Simulation of a Cyber-Attack on a Dynamic Positioning System in a Drilling Rig Simulator

As part of the feasibility of a cyber-attack on a dynamic positioning system (DP) (OT system), the use of an internal attack vector was demonstrated. In this case, a laptop used by the manufacturer's technician was infected, without his knowledge, with malware. The malware took over the DP systems and spread to other critical and safety systems onboard the rig.<sup>25</sup>

<sup>24</sup> [The Challenge](#), *NavalDome Website*, Retrieved December 2022.

<sup>25</sup> Rossi et al., *Cyberdefence of Offshore Deepwater*, 2021.



This demonstrates the ability of a malware to penetrate the cybersecurity measures currently in use on drilling rigs, gain full control over critical OT systems,<sup>26</sup> and even recreate, through a cyber-attack, similar malfunctions to those that led to the "Deepwater Horizon" oil spill in 2010 in the Gulf of Mexico, where 11 crew members loss their lives and which caused economic damage of more than \$140 billion and extreme environmental damage, as can be seen in Figure 8.<sup>27</sup>

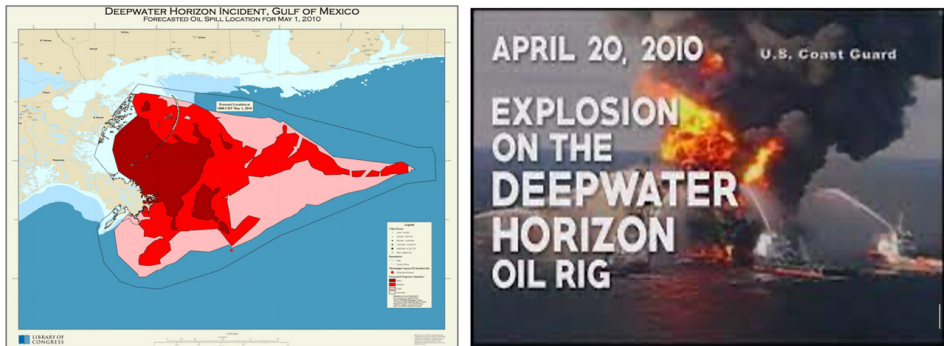


Figure 8: The 2010 "Deepwater Horizon" oil spill in the Gulf of Mexico

From the analysis of the cyber-attacks and the simulations on OT systems on different maritime platforms, it may be concluded that the cyber threat to maritime platforms is significant and has the potential to cause significant strategic damage with consequences related to the environmental, economic, geopolitical aspects and for human life.

### Coping with These Threats, and Can Approaches Used for Coping with the Covid-19 Pandemic be Implemented for Cyber Defense?

After defining cyber threats to maritime platforms as significant, the following step was examining if it is possible to implement the coping approaches with the Covid-19 pandemic to defense approaches for maritime cyber threats. In order to answer this question, different defense approaches were examined, as well as their comparison with approaches for coping with the pandemic.

There are currently three main defense approaches in use for protecting civilian maritime platforms against cyber threats on OT systems. The first and most common approach

<sup>26</sup> Mahesh Sonawane, Ryan Koska, Mike Campbell [Riser failure study IDs well control weak links](#), *Drilling Contractor News*, March 15, 2012.

<sup>27</sup> National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, [Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling](#). Report to the President, January 2011.

sees the human factor as mainly responsible for protecting the platform from cyber threats, and therefore focuses on cyber hygiene education and training of the crew members and technicians. This approach is similar to the one used to cope with the Covid-19 pandemic, which initially focused on education and training of the population (mandatory mask-wearing, social distancing and hand washing) and later was revealed to encounter difficulty dealing with complex threats such as cyber threats and pandemics. The second approach is based on the attempt to create a physical separation of networks, in order to mitigate and control the attacks. This approach is similar to lockdowns during Covid, and the implementation of technological monitoring solutions to identify and warn of abnormal or unauthorized activity following the penetration of malware is similar to the monitoring of cell phones, the positioning of roadblocks and the existence of checks at border crossings during Covid. In the case of coping with the pandemic and as well as with maritime cyber threats, it seems that alerting and monitoring approaches only provide a partial defensive response to the external attack vector. As opposed to this, when we examine the level of protection of this approach based on international cyber protection standards for OT systems,<sup>28</sup> it appears that this approach provides only a basic level of protection (SL-1), as detailed in Table 1 below, in accordance with the standard published in 2018 by DNV-GL, and contains the ISA/IEC 62443 (International Electrotechnical Commission) standard, which is used as a cybersecurity standard in automation and control systems in the oil and gas industry for OT systems embedded in the maritime industry.

Table 1: The definition of protection levels vs. protection capabilities and the nature of threat

Security Levels	Defense Capabilities vs. the Nature of the Threat
SL-1	Protection against casual or coincidental violation
SL-2	Protection against intentional violation using simple means, low resources, generic skills, low motivation
SL-3	Protection against intentional violation using sophisticated means, moderate resources, IACS specific skills, moderate motivation
SL-4	Protection against intentional using sophisticated means, extended resources, IACS specific skills, high motivation

The third approach is based on active defense software installed on each of the OT systems and used as an "individual vaccine",<sup>29</sup> which can also be described as "inside-out protection". As illustrated in Figure 9, this concept focuses on the implementation of

<sup>28</sup> [International Electrotechnical Commission \(ISA/IEC\) 62443, Security for industrial automation and control systems, Part 4-1: Secure product development lifecycle requirements \(2018\)](#); [DNVGL-CP-0231 Cyber security capabilities of systems and components \(2018\)](#).

<sup>29</sup> Rossi et al., Cyberdefence of Offshore Deepwater, 2021.

preventive and active defense software in each of the OT systems across the maritime platform, thus providing a defensive response to both attack vectors (external and internal), and providing the highest level of protection against state-sponsored attacks (SL-4). This approach does not require system upgrades, regular updates, training and prior cyber knowledge, it is suitable for the protection of connected or stand-alone, obsolete and new operating systems and allows the original equipment manufacturers (OEMs) to install it quickly and independently (between contracts). This is equivalent to the Covid-19 pandemic, when the individual Covid vaccine was developed and implemented, which can also be described as "inside out protection", as a dramatic decrease in the number of patients, infection and the danger was noted as a result, and allowed medical professionals and leaders to determine that this was the most appropriate way to cope with the pandemic.

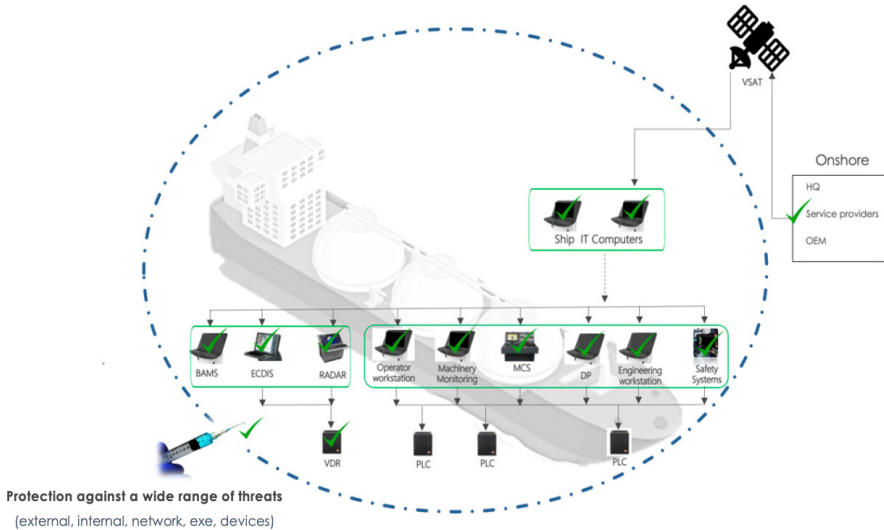


Figure 9: The "inside out" defense approach on a maritime platform

## Conclusions and Recommendations

This article's main findings indicate that over the past decade, civilian maritime platforms have become increasingly dependent on OT systems, based, for the most part, on obsolete operating systems with no security updates, limited monitoring capabilities, and usually no cyber protection. These technological shortcomings turn the OT systems into a weak point from a cyber perspective, with a basic level of protection (SL-1) that is not suited for coping with the growing widespread, sophisticated threat. These conditions create a real danger to maritime platforms operating, sailing, and docking in Israeli ports and Israel's

waters (territorial and economic [EEZ]), and may lead to considerable consequences at strategic, security, economic, environmental, and national levels.

It is recommended that the various decision-makers and representatives of the maritime industry in Israel (regulators, commercial vessel owners, shipping companies, energy companies and seaports) re-examine the level of cyber threat faced by each of the various components of the maritime industry against the level of cyber protection that exists for the platforms operating infrastructures in Israeli waters. Furthermore, it is recommended that the decision-makers in Israel adopt the ISA/IEC 62443 cyber standard for quantifying threats and defining the required level of protection (Security Levels – 1, 2, 3 and 4), rework the regulation definitions accordingly, and make sure this regulation is mandatory, and carry out more extensive and thorough cyber protection inspections for owners of maritime platforms (shipping and energy companies) operating in Israel's seaports and Israeli waters (territorial and economic [EEZ]). Finally, a work plan for national preparedness on how to cope with cyber-attacks on maritime platforms operating within Israel's borders, which may lead to loss of human life and danger to the environment, economy, and security, should be developed.

## Disruptive Technological Changes in the Field of Shipping and Ports as an Opportunity for Israel<sup>1</sup>

**Ehud Gonen**

The shipping sector, and parts of the maritime logistics industry related to it, are included in the 'blue economy' sector,<sup>2</sup> i.e., economic activity related to the sea.<sup>3</sup> The development of maritime technologies has been described by the OECD as one of the key factors in the development of a blue economy. In a detailed report published in 2016, predicting the development of blue economy until 2030, the organization notes a series of technologies such as sensors, satellites, autonomous systems and big data that are merging into new formations, changing the face of blue economy, and specifically shipping, navigation, maritime transport and "the smart ship".<sup>4</sup>

It should be noted that the field of shipping and ports is relatively conservative and operates according to global regulations, including large investments of capital. This is one of the reasons that this field experienced a relatively late digital revolution, and the introduction of disruptive technologies only during the past decade. The global bodies that regulate shipping, and especially IMO – the International Maritime Organization, have been working in recent years to create a regulatory framework for the introduction of new technologies, including autonomous technologies, into the field. Even so, the issue of advanced technologies for shipping has not yet been established according to clear international standards, and clear technological leadership of one company or another is

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- <sup>1</sup> This article is based on a research paper 'Determining Feasibility for a Test Area for Autonomous Vessels in Israeli Waters and its Future Expansion to the Area between Israel and Cyprus', prepared for the National Economic Council at the Prime Minister's Office (Hebrew).
  - <sup>2</sup> The European Union divides the blue economy sector into six branches: (a) maritime traffic and shipping, (b) food, nutrition, health and system services, (c) energy and raw materials from the sea and the seabed, (d) leisure, recreation and residences, (e) protection of beaches and cliffs, (f) monitoring, conservation and control. See: [United for Mediterranean](#).
  - <sup>3</sup> For a comprehensive overview of blue economy in Israel: Ehud Gonen, Overview of Blue Economy in Israel – Current Situation and Opportunities, Maritime Policy & Strategy Research Center (Hebrew).
  - <sup>4</sup> "[The Ocean Economy in 2030](#), OECD, 2016, pp. 119–126, 128–130: "These include Automated Identification System (AIS), Electronic Chart Display and Information System (ECDIS), Integrated Bridge Systems/Integrated Navigation Systems (IBS/INS), automatic radar plotting aids (ARPA), radio navigation, long-range identification, and tracking (LRIT) systems, Vessel Traffic Service (VTS) and the Global Maritime Distress Safety System (GMDSS). Moreover, ships now carry global satellite navigation systems (GNSS) and will soon all have reliable ECDIS".

not yet evident. For this reason, the distinct technological changes that have taken place in the field of shipping in recent years are an opportunity for Israel on a national level.

This article addresses the implications for Israel related to technological developments in the field of commercial shipping and maritime logistics. These developments include opportunities for Israel on three levels: economic opportunity: autonomous shipping technologies as a catalyst for growth and employment, both nationally and for the city of Haifa and the northern region, a regional opportunity: blue economy as a platform for regional cooperation in the eastern Mediterranean and the northern Red Sea, and a strategic opportunity: maritime technology as a tool for disillusionment from Israel's "maritime blindness", as a tool for increasing Israeli soft power, which can be an opportunity for possible Israeli influence on the international community. In addition, shipping technologies, and especially 'autonomous shipping' related to international trade, enable the collection of information and influence related parties beyond the specific field of shipping.

## Economic Opportunity

On a national level, Israel is internationally known for its local ecosystem in the fields of technological innovation to the point of branding the country a "startup nation".<sup>5</sup> Even in the 1990s, Israel was a global leader in the field of unmanned aerial vehicles (UAVs). While many are proud of this fact, as the Biblical proverb goes, 'For riches are not forever', and the development of an ecosystem for new fields must continue. The coming years are a window of opportunity for Israeli industry, with a possibility of taking over a significant part of the global shipping industry market, as it has done with UAVs, the space industry and autonomous terrestrial vehicles, and beyond its relative impact on world economy or trade.

In the context of transportation, two noticeable parallel national initiatives have occurred in Israel in recent years, promoting elite technology in the fields of unmanned vehicles in the air and on land. In the field of aviation, the Civil Aviation Authority at the Ministry of Transport in Israel authorizes unmanned aircraft to fly in civilian airspace. Israel is the first country in the world to approve such activity. This, as the Hermes Starliner UAV manufactured by Elbit, which is considered the most advanced of its kind, received a civil aviation license, completing its compliance with the international (NATO) standard conditions for the integration of UAVs in civil aviation areas. It should be noted that the approval of this move by the Civil Aviation Authority enables significant economic

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<sup>5</sup> Dan Senor and Saul Singer, *Start-up Nation: The Story of Israel's Economic Miracle* (New York: Twelve, 2009).

possibilities for the UAV manufacturer (Elbit), which has already signed contracts to supply the Hermes Starliner UAV to the Swiss Federal Department of Defense, Civil Protection and Sport and the Canadian Ministry of Transport and supplies the Hermes UAV to more than ten other countries.<sup>6</sup>

Furthermore, in January 2021 the "Drone Initiative" was launched by the Israel Innovation Authority. During this experiment, drone flights are carried out over residential areas in Tel Aviv-Jaffa, Ramat Sharon, Herzliya and Hadera,<sup>7</sup> and will be operated in Brazil as well, using the same Israeli control system. Together, the participating companies are expected to perform about 300 flights a day over open areas, and perform various types of missions on air routes assigned by the joint control system.<sup>8</sup> This is a joint venture of many commercial companies together with the Israel Innovation Authority, the Civil Aviation Authority at the Ministry of Transport, the Ayalon Highways Company and the relevant municipal authorities. Additionally, the first drone field in Israel is being established in Yeruham.<sup>9</sup> This combined activity of government authorities, commercialization of military technologies, government companies and private companies, according to a suitable regulatory framework, are catapulting the field forward on a global level.

Autonomous vehicles are another relevant field. Here too, Israel is a global leader when it comes to certain systems, a status reached thanks to an entrepreneurial culture, military investments, and appropriate governmental and regulatory programs. In 2017, a national plan for smart transportation was announced. The first part of the plan is "Promoting the establishment of an autonomous vehicle testing center that supports smart transportation."<sup>10</sup> Over the years, hundreds of companies in the field of smart transportation have been established in Israel, some of which, such as "Mobileye", are world-class leaders in their field.

The Department of Smart Transportation at the Ministry of Transport, in cooperation with the Ministry of Transport and other relevant government agencies, is making efforts to initiate, assist and promote activities that will advance the operation of autonomous

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<sup>6</sup> ["A Global Aviation Revolution"](#), Ministry of Transport, February 13, 2022 (Hebrew).

<sup>7</sup> ["The National Drone Initiative Began with a Pilot over the City of Hadera"](#), *TechTime*, June 30, 2021 (Hebrew).

<sup>8</sup> ["The Third Phase of the National Drone Project is Underway"](#), Israel Innovation Authority, October 12, 2021 (Hebrew).

<sup>9</sup> Keinan Cohen, ["The Demand for Experiments has Taken Off, and the first Drone Field in Israel will be Established in Yeruham"](#), *Walla News*, April 8, 2021 (Hebrew); Nurit Sommer, ["A Unique Test Field for Drones Will Soon be Established Near Yeruham"](#), *YNET*, December 20, 2020 (Hebrew).

<sup>10</sup> ["The National Plan for Smart Transportation"](#), Government Resolution No. 2316 of January 22, 2017 (the 34th government led by Benjamin Netanyahu).

vehicles.<sup>11</sup> The Ministry of Transport notes that among the actions taken for this purpose are the passing of the 'Law on Autonomous Vehicle Experiments in Israel', and the preparations for sub-legislation on the matter (the law entered into effect in April 2022).<sup>12</sup>

In the context of innovation and development, the National Economic Council at the Prime Minister's Office stated:

Leveraging technological innovation in Israel: While Israel has not been a player in the traditional automobile industry until now; it is emerging as a major player in the field of smart transportation, where it has a comparative advantage. The transition from the development stages to the implementation stages of smart transportation creates another significant opportunity for Israel, which can also become the focus of beta sites.<sup>13</sup>

This Israeli technological leadership in the fields of aviation and autonomous vehicles, as well as in the field of space (not detailed in this document) was achieved even though Israel does not have a distinct production of terrestrial or aerial platforms.

In the past decade, there are indications of a substantial change in the way the shipping and ports sector operates, and it is possible to identify a number of operational areas in which a substantial change is taking place. The first is process automation and autonomous shipping. Another trend related to automation is the development of cyber for the maritime domain, and the third is big data. Israel has distinct bodies of knowledge and development capabilities in all of these fields. Thus, there is room to expand activity in the fields of space, air and land technologies to the sea as well.

Process automation and autonomous shipping: Difficulty in recruiting shipping personnel and a wish to reduce ship operating costs are pushing the industry to cut down on crews by introducing advanced technology in the fields of navigation and ship operation. This is related to the remote operation of ships from offshore control centers or completely autonomous shipping on fixed lines, such as ferry lines, supply to fixed rigs at sea, and the like.

Cybersecurity: the emergence of cyber warfare and the increasing involvement of state and non-state actors in cyber-attacks on critical infrastructures such as ports, both in

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<sup>11</sup> ["Autonomous Vehicle"](#), Ministry of Transportation, April 5, 2021 (Hebrew).

<sup>12</sup> ["The Knesset has Begun Debating a Bill that will Allow Conducting Tests on Autonomous Vehicles for the First Time in Israel"](#), Ministry of Transportation, December 8, 2021 (Hebrew).

<sup>13</sup> Roni Bar, "Israel is Preparing for the Smart Transportation Revolution: Autonomous, Electric Vehicles, the Economic Consequences of Connected and Collaborative", Economic Council, Prime Minister's Office, April 2019 (Hebrew).



terms of information technology and in terms of operational technology, and in the process the use of private entities and advanced technologies in order to achieve strategic value, all turn the maritime domain into a most vulnerable arena. In the past decade, the civil maritime industry (shipping industries, vessels, passenger ships, shipyards, ports, terminals and gas and energy infrastructures) has become very dependent on computer and control systems based on operational technologies. These systems are mostly based on outdated operating systems, without security updates, have limited (if any) monitoring capabilities and most have no cyber protection at all.<sup>14</sup>

Big data for the maritime sector: in the maritime sector, many systems, such as ships, cranes, freighters and more, operate and produce great amounts of data. This is in fact the Internet of Things (IoT). These "things" range from ships and cranes to a single container. This data can be processed and analyzed with big data and AI tools. The insights from these processes improve and optimize the flow of products in the logistics value chain.

It should be noted that in recent years Israeli entrepreneurs are discovering the maritime field and the potential inherent in it as a 'vertical field' for technological developments, and there is already a fairly solid foundation for the expansion of this industry; however, complementary government activity is necessary for the development of the field. Among the commercial activities in the field of maritime technologies that already exist in Israel, the following should be noted:

Venture capital activity: theDOCK Maritime-Tech venture capital firm announced a second round of fundraising in the amount of 30 million dollars in 2022.<sup>15</sup> The Arieli Capital holding and investment company deals, among other things, with maritime technologies. The company operates the innovation center in Eilat (including activities in the field of aquaculture in the Negev) and also announced cooperation with the China Merchants Company, to manage an innovation center for maritime technology that will be established in China.<sup>16</sup>

The Beta site at Haifa Port: The port is working to establish projects in the field of technological innovation for the world of shipping, ports and logistics. However, it should be noted that due to the privatization processes of the port (the announcement of the winner of the privatization of the Haifa Port was made in August 2022, but the Israeli-

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<sup>14</sup> For a discussion on the topic, see Itai Sela, "Estimate of the Cost of Protecting the Sea Ports in Israel Against Cyber Threats", in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2022), pp. 346–357.

<sup>15</sup> theDock Company website: [thedockinnovation.com](https://thedockinnovation.com).

<sup>16</sup> Gonen, Overview of Blue Economy in Israel (Hebrew).

Indian consortium that won the tender has not yet started the actual operation),<sup>17</sup> activity regarding technological innovation has been hampered.<sup>18</sup>

The technological incubator at the Ashdod Port: Ashdod Port established an innovation incubator in the field of logistics, shipping and ports. Furthermore, the 500 Global accelerator, which specializes in managing technology incubators, joined the port's operations.<sup>19</sup>

Israeli National Center of Blue Economy: In July 2022, the National Center for Blue Economy was launched by the Municipality of Haifa. The center is managed by the municipal corporation HiCenter, which encourages the development of entrepreneurship in the city.<sup>20</sup>

Vessel production: there is one shipyard company in Israel intended for building ships. "Israel Shipyards" manufactures medium-sized vessels of up to 70 meters in size, such as Shaldag-class patrol boats or missile ships, mainly for military and law enforcement purposes (Coast Guard, etc.). These are shipyards with an international reputation in their niche of activity. Furthermore, unmanned military vessels were/are being produced by Rafael (the Protector ship), Elbit (Sigol), and IAI (Katina).

At the end of 2021, the Israel Aerospace Industries (IAI) signed a contract with the EDGE company from the United Arab Emirates for the joint production of autonomous vessels for a variety of military and commercial applications.<sup>21</sup> In the underwater field, ELTA (a subsidiary of IAI) has developed an unmanned submersible vessel with capabilities to replace sensors and tasks according to operational needs.<sup>22</sup>

Private companies: in the civil sector, a number of relatively large companies such as 'Totem Plus', which deals in navigation systems and is a leading company in the field of

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<sup>17</sup> ["Gadot Won the Tender for the Privatization of the Haifa Port for NIS 4.1 Billion"](#), *Calcalist*, July 14, 2022 (Hebrew).

<sup>18</sup> ["The Port of Haifa Publishes a Request for Tender for a Technological Innovation Project in the Field of Shipping"](#), *port2port*, January 24, 2019 (Hebrew).

<sup>19</sup> ["Innovation at Ashdod Port"](#), Ashdod Port, retrieved November 2022 (Hebrew).

<sup>20</sup> The National Center for Blue Economy Website. [blueeconomy-il.com](http://blueeconomy-il.com).

<sup>21</sup> Press Releases ["EDGE Announces Strategic Deal with IAI to Develop Advanced Unmanned Surface Vessels"](#) IAI, November 18, 2021.

<sup>22</sup> Roy Nagler, ["The Challenges in Operating Autonomous Vessels in the Era of Globalization – the Case of Autonomous Cargo Ships"](#), in Shaul Chorev and Ehud Gonen (eds), *Maritime Strategic Evaluation for Israel 2019/20* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2020), 1–14.

maritime navigation systems and decision support systems, as well as the 'Orca', may be mentioned. The website of the Israeli Advanced Technologies Forum lists several dozen maritime companies, but this is only a partial list of the companies operating in Israel.<sup>23</sup> Zim is a large Israeli shipping company, but the company's core business is maritime and integrated transport and not technological developments. However, given the appropriate context, the fact that 'Zim' is an Israeli company may allow experimental installations of innovative technologies.

In addition to the maritime technology field being a potential catalyst for national growth, it can also encourage distinct growth in the Haifa Bay and the Western Galilee region. Since 2015, the government has been determining a social and economic development policy for the north of Israel and the city of Haifa. In the process, government decision No. 2262 was accepted in 2017 on the subject of 'Economic development of the northern district and complementary measures for the city of Haifa', which included a reference to the issue of the port and its infrastructure.<sup>24</sup> In 2020–2021, in accordance with a government decision on the 'development and advancement of Haifa Bay',<sup>25</sup> a committee of Director Generals from relevant government ministries was convened within the framework of the National Economic Council, and conducted a long and comprehensive procedure that focused mainly on the petrochemical industries in Haifa Bay, but encompassed all aspects of the economy and employment in the region. The committee determined the following:

Analysis as part of the committee's work found that the relative advantages of the bay area include: knowledge-intensive industry, seaport and logistics, "green" production industries for energy and chemistry, and leisure tourism. Based on this analysis, there is great potential for employment in the Haifa Bay, and for the realization of the "Innovation Bay" plan.<sup>26</sup>

One of the committee's recommendations was the development of knowledge-intensive industrial areas in the Haifa region for the purpose of shifting the industrial focus of Haifa from the petrochemical industry to knowledge-intensive industries. This trend is in line with the Haifa Municipality's own policy for the development of the city as a center for knowledge-intensive industries. This policy is based on the fact that growth engines for the city are tourism, sea, aquaculture, environment, sustainability and security.

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<sup>23</sup> Maritime Technologies Forum website. [israelmaritime.org](http://israelmaritime.org)

<sup>24</sup> "[Economic Development of the Northern District and Complementary Measures for the City of Haifa](#)", Government Resolution No. 2262, January 8, 2017.

<sup>25</sup> "[Development and Advancement of Haifa Bay](#)", Government Resolution No. 472, October 25, 2020 (Hebrew).

<sup>26</sup> "[Recommendations of the CEOs' Committee for the Development and Advancement of Haifa Bay](#)", National Economic Council at the Prime Minister's Office, June 7, 2021 (Hebrew).

Advanced technologies in the field of shipping and ports can contribute to the economic development of the Israeli economy and growth within a sector in which hundreds of companies will operate, employing thousands of workers at high wages, and creating wide circles of employment and technological exchange, as is the case in the fields of space and unmanned aircraft and vehicles. There is a need to build an economic infrastructure that includes dedicated development plans for the field, beyond the activities of technology companies and private venture capital funds that already operate in this field, as well as the development of appropriate regulatory infrastructure, such as test and trials facilities.

The first step in this direction was the Ministry of Innovation, Science and Technology's statement regarding the sea as one of the five national priority areas. This decision must continue to be supported with an appropriate budget and regulatory activity, a process that is indeed taking place.<sup>27</sup>

## Regional Cooperation Opportunities

Cross-border economic cooperation is one of the ways for building regional security stability, and this goes beyond the direct economic benefit inherent in them. The economic potential inherent in the joint project for each party drives a mutual desire to preserve the cross-border ventures despite upheaval and external events. Furthermore, direct channels of communication are opened between individuals and organizations on both sides of the border, which, in turn, also contribute to general stability. In the Israeli context, the QIZ project between Israel and Jordan and between Israel and Egypt,<sup>28</sup> as well as past collaborations between Israel and Egypt in the field of agriculture may be mentioned. Examples of these in recent years are cooperation in regard to gas fields, such as the agreement between Israel and Egypt and the establishment of a regional alliance in the eastern Mediterranean (see below).<sup>29</sup>

Technological collaborations with Cyprus and Egypt in the field of shipping technology and ports are unique, in light of the maritime characteristics of these countries (see below). It is possible to plan joint international experimental areas for shipping and logistic technologies, demonstration and feasibility testing facilities (beta site), international

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<sup>27</sup> The National Council for Civil Research and Development, "[Bioconvergence, foodtech, Renewable Energies, Space and Blue-tech: these are the National Priority Areas for the State of Israel](#)", the Ministry of Innovation, Science and Technology, September 4, 2022 (Hebrew).

<sup>28</sup> Qualify Industrial Zones – QIZs are industrial zones in Jordan and Egypt where Israeli-owned or joint-owned factories benefit from duty-free exports of goods (mainly textiles) to the United States under the auspices of Israel's free trade agreement with the United States.

<sup>29</sup> Danny Zaken, "[It's official: Israel, the European Union and Egypt have signed a gas export agreement](#)", *Globes*, June 15, 2022 (Hebrew).

cooperation to obtain funding from international organizations (such as the World Bank or European funds), to support joint projects and more.

## Cyprus

Civil cooperation between Israel and Cyprus, especially in the areas close to the maritime domain, has a high potential for success. Being an island, Cyprus is dependent on the sea for every aspect of its existence. This island, with about one million inhabitants, has a world-class flourishing shipping industry, on a larger scale than that of Israel. The Cypriot fleet flying a national flag included (as of 2020) 1,056 ships with a total load of 35 million tons, in addition to many ships under flags of convenience or in partnership with Greek players (Greece is one of the most important shipping countries in the world).<sup>30</sup> Cyprus also supports entrepreneurship and innovation and tries to promote these fields. For example, with a chief scientist position, responsible for research and entrepreneurship.<sup>31</sup>

In recent years, diplomatic relations between Cyprus and Israel have been strengthened, especially in aspects of energy and maritime activity. The catalyst for this improved diplomatic relationship is common interests in energy issues such as gas and electricity on the one hand, and the existence of a common adversary – Turkey, on the other. Cyprus has been a member of the European Union since 2004. Israel and Cyprus have a common maritime border in the economic exclusive zones (EEZ) and thus, practically, Israel has a common maritime border with the European Union. The two countries agreed on the demarcation of their maritime border in an agreement signed in December 2010.<sup>32</sup> In 2021, the countries reached certain agreements regarding the Aphrodite-Yashi reservoir shared by both.<sup>33</sup> Israel and Cyprus also signed an agreement to connect the electricity grid between the countries with an underwater cable that will be the longest of its kind.<sup>34</sup>

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<sup>30</sup> "[Maritime Profile: Cyprus](#)", *UNCDATSTART*, 2021.

<sup>31</sup> Cyprus's Chief Scientist for Research and Innovation Website. [chiefscientist.gov.cy](http://chiefscientist.gov.cy)

<sup>32</sup> Avi Bar-Eli, "[Israel and Cyprus Agree on Economic Waters Border](#)", *TheMarker*, December 19, 2010 (Hebrew).

<sup>33</sup> "[Minister Steinitz and his Counterpart from Cyprus – Natasa Pilides, Reach a Solution to the Dispute at the Aphrodite-Yashi Reservoir](#)", Ministry of Energy, March 9, 2021 (Hebrew).

<sup>34</sup> "[Israel Connects to the European Electricity Grid: Minister Steinitz Signed a Memorandum for Laying the World's Longest Underwater Electricity Cable](#)", Ministry of Energy, March 9, 2021 (Hebrew).

## *Egypt*

In light of Israel's five wars with Egypt (1948, 1956, 1967, 1967-1970, 1973), a peace treaty signed in 1979 and Egypt's influence on what is happening in the Gaza Strip, the stability of relations with Egypt is a strategic goal.

Egypt is a key country in the field of global shipping, due to the Suez Canal that runs through its territory. About 10% of world trade is transported through the canal. The canal, which was expanded in recent years as part of an Egyptian national project, is operated by a government authority that runs hundreds of different vessels and employs thousands of workers. Port Said, at the northern exit of the canal, is one of the largest transshipment ports in the region.

A maritime border with Egypt has not been officially determined, and there is also the problem of defining a maritime domain for the Gaza Strip, located between the countries. However, at longer ranges in the EEZs, Israel and Egypt share a common maritime border, since there is an underwater gas pipeline between the countries. Economic cooperation in the field of blue economy, energy and shipping technologies between Israel and Egypt is also relevant in the Red Sea, where Egypt is in the midst of a great economic and maritime development boom.

The Israeli government decided on "a plan to promote and expand the economic ties between the State of Israel and the Arab Republic of Egypt".<sup>35</sup> This decision includes elements of joint development of a blue economy, in the fields of aquaculture (both in the Mediterranean and the Red Sea), energy from the sea, and marine tourism. Expansion of this program to the fields of shipping technology and logistics should also be considered.

## *The East Mediterranean Gas Forum*

The East Mediterranean Gas Forum (EMGF) is a maritime economic cooperation forum for the countries of the Eastern Mediterranean. This forum began as the 'Hellenic Alliance' between Israel, Cyprus and Greece to which Egypt was also invited. Later, the framework was expanded into an established forum called the "East Mediterranean Gas Forum", which includes Greece, Israel, Jordan, Egypt, France, Cyprus and the Palestinian Authority. The United States and the European Union are observing members of the forum as well. Originally, the forum was established for the purpose of consultations on the construction

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<sup>35</sup> ["A Plan to Promote and Expand the Economic Ties between the State of Israel and the Arab Republic of Egypt"](#), Government Resolution No. 1522, Israel Government, May 29, 2022 (Hebrew).

of an underwater gas pipeline project that would centralize the export of gas from the economic waters of Israel, Cyprus and Egypt and reach the European markets via Italy.<sup>36</sup>

In addition to this, a 3+1 forum exists, including Israel, Cyprus and Greece as well as the United States. Within it, blue economy emerges as a relevant and important field to the relationship of the forum members.<sup>37</sup>

### *Strategic National Opportunities*

On a strategic level, the development of maritime technologies will help to renew essential maritime knowledge that is gradually disappearing from Israel. It will also increase Israeli soft power, and provide diplomatic leverage for Israel in the international arena.

In Israel, there are six commercial ports (Haifa port, the Bay port, Ashdod port, the South port, Israel Shipyards and Eilat port) and three energy ports (Hadera, Ashkelon, Eilat). The cumulative length of the docks in these ports is more than 13.5 km and they use advanced technologies (the vast majority of which are not Israeli) such as semi-automatic bridge cranes, automatic facilities for bulk goods (grains and cement) and more. The ports are operated by Israeli governmental companies, alongside leading international companies such as SIPG from China, TIL from Switzerland and Adani from India.<sup>38</sup>

On the other hand, Israeli shipping is at a low. The fleet of ships owned and controlled by Israel stands at 35 ships alone (in 2021), of which only 7 ships raise the Israeli flag. The average age of merchant navy ships is 13.3. A total of 129 Israeli sailors are employed at the Israeli-owned and controlled merchant navy, all of them officers without ratings (qualified sailors).<sup>39</sup> These numbers are distinctly lower than those of the 'heyday' of Israeli shipping in the 1960s and 1970s, when dozens of ships sailed under the Israeli flag, with thousands of Israeli sailors.

The decline of Israeli shipping and the loss of knowledge and manpower in the maritime field, with only a few ships raising the Israeli flag, about a hundred Israeli naval officers and no Israeli ratings at all, has strategic effects on the country's international trade during emergencies, and it is likely (in view of past events) that global shipping will

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<sup>36</sup> ["Cyprus, Greece, Israel and Italy Signed a Memorandum today in Nicosia for the Construction of the Gas Pipeline from Israel to Italy"](#), Ministry of Energy, December 15, 2017 (Hebrew).

<sup>37</sup> Israel's ambassador to Cyprus, Oren Anolik, on a Zoom call, June 2022.

<sup>38</sup> In August 2022, the Adani Group from India won the tender to operate the Haifa Port but has not yet begun this operation.

<sup>39</sup> *Shipping and Ports Statistical Yearbook 2021*, Administration of Shipping and Ports, Ministry of Transport, 2021, p. 101 (Hebrew).

avoid Israeli ports in such cases. Furthermore, the decline of Israel's commercial fleet means the loss of maritime knowledge essential to the management of Israel's ports and maritime domain. The development of maritime technologies is a tool for addressing Israel's maritime blindness, and to recognize, once again, the importance of the maritime domain to the Israeli public.

Technological leadership is a significant part of a country's soft power. The exchange of technology is often used as a currency in the diplomatic world. Countries with economic and technological power can exert more influence on other players in the international community in order to advance their goals. In the Israeli context, it is possible to see Israeli leadership in areas such as agriculture, water technology and energy, areas that promote Israel's position in the region and in the world, and allow it room for diplomatic maneuvering.

Global technological leadership allows leading countries to define international standards suitable for their local industry, thus leveraging leadership in a certain sector for further economic development which, in turn, preserves leading positions in that field.

Furthermore, exporting technologies enables the collection of much information that can be used by state or commercial companies in future developments and future economic impact. For example, the political power of a global social network platform – in light of the huge amount of information it contains – is immeasurably greater than the purely financial scope of the activity on it. Another example from the field of transportation is companies such as Boeing or Airbus in the aviation field, Maersk in the shipping field, major car manufacturers such as Toyota and more – all of these have much information regarding global trends that go far beyond the field of transportation in which they operate – this is due to the global aspects of these companies' activities. In light of the cross-sectional importance of the maritime trade, shipping and maritime security fields, a significant future technological presence in these fields also brings with it the ability to collect much information and with it a greater influence in the global arena.

## Conclusions and Recommendations

It will probably be many more years before fully autonomous ships with no crew will sail the seas. However, it seems that we are in the midst of introducing advanced technologies to the field of shipping, and should certainly expect an increase in the level of vessel automation and the introduction of decision support systems, which will greatly lower the number of crew members on board the ships. Additionally, there may be ships that will be operated and supervised from the shore, where the crew will operate and



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supervise several ships at the same time, or ships and smaller vessels without a crew that will sail on fixed and clear routes.

The development of maritime technologies is a catalyst for national growth, similarly to the fields of space, automobiles and aviation and can also be a major regional growth catalyst in the Haifa Bay area, as an alternative to the petrochemical industry. The development of maritime technologies can strengthen relations with Cyprus and Europe, as well as with Egypt, and can help Israel take a proper and respected place in the field of global shipping. Israel has a maritime heritage, but in recent decades maritime knowledge has been lost. This situation has strategic consequences, among other things, on the country's international trade during an emergency and the control of the Israeli maritime domain.

As in many fields, technology and legislation advance together, and the need for regulation that enables technological development, such as conducting sea trials in Israel on a regular basis as part of an infrastructure for the development of a blue economy, is increasing. This is in line with global trends in the development of blue economy, as well as the economic development trends in Israel, based on entrepreneurship and innovation.

### *Main Recommendations*

1. Action must be taken to build a national plan to promote the field of maritime technologies. The announcement of an Israeli National Center of Blue Economy in Haifa, and the announcement of blue economy as a national priority by the Ministry of Innovation, Science and Technology are undoubtedly noteworthy progress, but these announcements must be broken down into practical plans and budgeted accordingly, and an appropriate regulatory framework must be promoted.
2. The maritime regulators must promote a regulation that allows experiments in advanced technologies for naval vessels, such as autonomous vessels.
3. On the issue of international standardization: the autonomous shipping trend is industry-driven, meaning it grows bottom up. Therefore, there is great significance to technological capabilities alongside standardization. It is recommended to act for the purpose of placing Israeli experts in the fields of technological standardization for the maritime domain, especially when it comes to maritime cyber. For this reason, together with the Standards Institution of Israel, it is recommended to integrate technical experts from Israel under ISO/TC 8 Ships and maritime technology committee, for activity in the next World Organization for Standardization teams.



# Conclusion



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## Summary of Maritime Strategic Evaluation for Israel and Policy Recommendations

*Shaul Chorev*

### Abstract of Insights

#### Geopolitical and geo-economic changes affecting Israel's interests in the maritime domain

The year 2022 was notable for its many diverse challenges, all affecting and intensifying one another in a relatively short period: the war in Ukraine, the continuing impact of the COVID-19 pandemic, the ongoing Iranian nuclear program, the Chinese threat to Taiwan, signs of a global economic slowdown, inflation, the weaponization of energy sources, uncertainty in the global food market, climate problems, and droughts. The increased tensions between the superpowers raise the concern of a return to a Cold War atmosphere, perhaps even the possibility of a large-scale, violent conflict erupting because of the Russian campaign in Ukraine and the tensions that have recently flared between the United States and China over Taiwan. A significant result of these upheavals is that the Middle East, which the United States had tried to move from the center of gravity of its international focus, returned to center stage, as manifested in the importance that the superpowers are now attributing to it.

Russia's invasion of Ukraine in February 2022 caused the most serious international crisis since the Cold War, marking a new stage in determining borders and the movement of populations in Europe.<sup>1</sup> These are amplified by concern about China's ambitions in its spheres of influences in East Asia and the Indo-Pacific region that have the potential to reshape the international order. Putin's frequent references to the potential use of nuclear weapons also worry the West, especially given that relations between Russia and the United States have not been so strained since World War II. This concern is amplified by China's support for Russia in the international arena. It should be born in mind that during most of the Cold War, in contrast to today, senior defense officials in the Soviet Union and the United States, foreign policy makers, intelligence officials, and experts in nuclear oversight managed to engage in extended, informed discussions about the capabilities of nuclear weapons and the risks of nuclear war. These meetings resulted in arms control agreements, mutual inspections of sites where nuclear weapons were

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<sup>1</sup> Paul Dibb, [The Geopolitical Implications of Russia's Invasion of Ukraine](#), *The Australian Strategic Policy Institute*, September 2022.

stationed and stored for agreement verification, and a comprehensive set of means for transmitting signals and messages at times of security crises.

Before deciding to invade Ukraine, President Vladimir Putin saw EU member states as weak and divided, and the United States as a declining superpower, an assessment he shared with Chinese President Xi Jinping, newly reelected to another five-year term by the Chinese Communist Party. Apparently, the latest reactions of EU and NATO members to the invasion, in part manifested in rapid and painful anti-Russian sanctions, in addition to steadfast material and moral support for Ukraine, have persuaded both leaders to take the EU and NATO as well as the U.S. commitment to these organizations much more seriously. The scope and depth of China-Russia relations is not yet clear from the most recent events mentioned above. Nor it is clear how both – together and separately – are seeking to change the balance of power in the Indo-Pacific region.<sup>2</sup> Like his predecessors, U.S. President Joe Biden has tried to shift the center of gravity of the U.S. system toward Southeast Asia and to prepare for the possibility of a military conflict there. However, he, too, has been dragged back into dealing with familiar and troublesome problems in other regions. NATO's strategic doctrine, updated in 2022, recognizes that the Indo-Pacific region is important to NATO and that developments there might directly impact Europe's security. Accordingly, NATO announced it would strengthen its dialogue and cooperation with existing and new partners in the Indo-Pacific region to be better prepared for cross-regional challenges and "joint security interests" – a new direction in NATO's strategic vision regarding China.<sup>3</sup>

The geostrategic importance of the Middle East – an area connecting Asia, Africa, and Europe – remains at the center of the competition over influence among the global powers. The competition among the United States, China, Russia, and Europe, as well as rising powers such as India, which is working on creating new connections throughout the region, undoubtedly had an impact on the region in 2022. Consequently, most of the region's nations have started a process of "strategic hedging", expressing their desire to maintain good relations with all the external powers named above. Thus, for example, the United States under President Biden tried to formulate a liberal values-based foreign policy in the Middle East that would challenge Turkey and Saudi Arabia, is instead grappling with the fact that Turkey is a potent regional geopolitical power; as a result, securing Turkey as an ally is starting to become more important than the way President Erdogan runs his regime. This shift, similar to that – albeit unsuccessful – with Saudi Arabia, is

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<sup>2</sup> Ibid, 22.

<sup>3</sup> Adopted by Heads of State and Government at the NATO Summit in Madrid, June 29, 2022, [NATO 2022 Strategic Concept](#).

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evidence that in the realm of international relations, realpolitik calculations are weightier for both sides.<sup>4</sup>

In 2022, Iran and its relations with Middle East nations continued to preoccupy regional leaders and the United States. In the absence of progress in the nuclear talks, Iran expanded its stockpile of nuclear materials and raised its enrichment level. Even if the nuclear talks are resumed, as long as the current Iranian regime stays in power, the international community will inevitably face broad security questions related to Iran's support for regional terrorism. These will in all likelihood remain unresolved and continue to contribute to Middle East uncertainty. Iran's involvement in the Russia-Ukraine war through its sale of Shahed-9 unmanned aerial vehicles (UAVs) to Russia and their deployment against military and civilian infrastructures, has earned Western condemnations while also certainly creating future Russian political and military obligations to Iran.

Regional attempts to rehabilitate diplomatic relations damaged in recent years in the Middle East and to normalize relations among nations that cut ties or never had diplomatic relations in the past are likely to continue. The growing rapprochement among Turkey, Egypt, Israel, Qatar, Saudi Arabia, and the UAE will likely progress slowly as these nations seek ways to coordinate and cooperate over issues related to the economy, energy, and common security. Still, a certain measure of distrust will continue to mark their relations, and the scars of the 2011 Arab Spring will be remembered. The normalization agreements between Israel and the UAE, Bahrain, and Morocco have resulted in economic and security ties, but there have been no breakthroughs in relations with other nations, such as full diplomatic ties with Saudi Arabia; nor has there been progress on the Palestinian front. As part of the process of repairing relations in the region, Turkey continued its attempts to restore ties with Israel in 2022. In March, President Isaac Herzog was received by President Erdogan in Ankara, the first diplomatic meeting of heads of state since 2008. This was followed by Prime Minister Yair Lapid's visit to Turkey in June in the wake of thwarted Iranian terrorist attacks on Turkish soil. In August, Israel and Turkey announced full normalization of diplomatic relations, and the two leaders, Lapid and Erdogan, held a historic meeting in New York during the U.N. General Assembly in September. Defense Minister Benny Gantz then visited Turkey in October to renew security relations between the nations after a more than decade-long freeze. During his visit, Gantz met in Ankara with Erdogan and Turkish Defense Minister Hulusi Akar.

Despite Turkey's dire economic situation, marked by high inflation and persistent currency devaluation, economic cooperation between Israel and Turkey increased. In 2021, trade

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<sup>4</sup> Alper Coşkun, [Making the New U.S.-Turkey Strategic Mechanism Meaningful](#), *Carnegie Endowment for International Peace*, May 12, 2022.

between the nations grew by 35 percent, amounting to some \$6.7 billion.<sup>5</sup> Erdogan, facing reelection in 2023, is undoubtedly shaping some of his economic policies in order to secure his victory. Erdogan has a solid international standing and has successfully established ties with the Gulf States as well with Russia and China. According to him, the July 2022 grain transfer agreement between Russia and Ukraine that he helped broker is his own personal achievement and proof of his desire to help poor nations whose food security has been endangered because of the war. While Turkey has been hurt by skyrocketing energy prices, it is still reaping handsome benefits from the war, and not just because of the investments of Russian citizens and oligarchs in the country. Trade between Turkey and Russia has grown by almost 200 percent since the start of the war, and is estimated at more than \$6 billion; this in addition to the \$10 billion Russia has invested in building a nuclear power plant in Turkey. In October 2022, Putin and Erdogan announced an agreement to turn Turkey into a regional marketing hub of gas and oil. These resources will flow through this center to European countries from Saudi Arabia, Iran, Russia, and various Middle East nations, despite the fact that Turkey is providing Ukraine with UAVs to fight Russia. At the same time, Finland and Sweden are still waiting to be accepted into NATO as Turkey delays these efforts by trying to wrest concessions, such as NATO nations' support for Turkey taking an even harder line against armed Kurdish militias. Turkey's relations with Saudi Arabia have started to yield economic benefits. In addition to the financial aid Turkey will receive from the kingdom, the giant Turkish holding company Yuksel was recently awarded a \$12 billion contract for infrastructure construction in Saudi Arabia. Another Turkish company won a tender to develop infrastructures in Mecca. In addition, the UAE has pledged approximately \$10 billion to an aid and financing package to Turkey. These successes stand in contrast to the Turkish economic crisis and its attendant high rate of inflation.

Our insight on taking a stand on the Russian-Ukrainian war: Although Israel originally remained neutral, in light of recent developments, including Iran's support for Russia and the use of Iranian drones against civilians in Ukraine, it may now have to cede to the United States and its allies and align itself with them. This despite Israel's strategic need to take a cautious approach and not get caught in the middle of the U.S.-Russia rivalry. It would be prudent for the new Israeli government to formulate its stance sooner rather than later. At the same time, Israel must also come to terms with the new world order and provide unique and solid contributions to new coalitions and cooperative frameworks

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<sup>5</sup> Danny Zaken, "[Heskem shituf pe'ula hadash beyn ha'irgunim ha'iski'im beyisrael veturkiya](#)" (Hebrew) ["New Agreement of Cooperation between Business Organization in Israel and Turkey"], *Globes*, March 6, 2022.



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that will enable it to withstand the upheavals of this new era, first and foremost the Iranian challenge.

Our insight regarding Turkey is that Israel must make it clear that no progress in relations with Turkey would come at the expense of its relations with Greece, Cyprus, Egypt, and the UAE. Nonetheless, Israel must support a political settlement (and not just according to the [UN Convention on the Law of the Sea](#), UNCLOS) of the Turkish-Greek disagreement over their respective exclusive economic zones.

The military campaign between Russia and Ukraine must also be addressed. This is primarily a ground war, but the maritime aspect is not altogether absent. Its effect is felt in two major areas. The first is the cessation of the supply of grain and wheat through Black Sea ports, due either to events related to the war or to the closure of Turkish straits to shipping. The second involves the war's naval clashes, culminating in the sinking of Russia's cruiser, the *Moskva*, events that have most certainly had an impact on the nature of naval warfare and fleet deployment. It is also impossible to ignore several other significant events, including the Russian navy's blockade on Ukraine's ports, which has disrupted the global supply chain of various goods; the laying of mines in the Black Sea (to date, it is not clear who is responsible); the launching of cruise missile from Russian naval vessels and submarines in the Black and Caspian Seas at ground targets in Ukraine; the use of UAVs in the naval theater by both sides to attack military targets, such as ports; and the failure of the Russian preparations for amphibian operations near Odesa. An in-depth examination of these events shows that the nature of naval warfare continues to change and that these changes obligate navies everywhere to adapt their naval doctrines and reorganize their naval forces and technology development to meet the new nature of warfare.

Our insight on this issue is that it is vital that the officials in charge of the maritime domain in Israel, including the Israeli navy, also study the lessons of the naval incidents during the Russia-Ukraine campaign. They must understand and internalize the changes in the nature of warfare in the maritime domain in order to make the necessary changes in naval force construction and to adapt the doctrine of its force operation to Israel's unique attributes and situation. Apart from drawing conclusions from the asymmetrical and hybrid warfare in the Russian-Ukrainian campaign, it would be prudent for Israel to examine the nature of other events, including the unilateral closure of international naval passages to military vessels (which has impacted Israel negatively more than once), and the ramifications of strikes on large military vessels with large crews in terms of loss of life. Israel would be advised to develop an appropriate response to rapidly developing threats, such as UAVs and drones capable of attacking naval vessels (such as the Shahed-136), in addition to rockets and missiles. Successes in using this promising type of weapon suggest that such

threats will only multiply, as can be seen in the use of other devices by the Houthi rebels to lay sea mines in the southern part of the Red Sea, which could pose a threat to Israeli shipping in that region. A response to changes in the nature of warfare must find the right balance between reliance on technological components versus conceptual and organizational components. To succeed in such a process, the Israeli Navy must invest in training the people working in the field of strategic thinking about the naval theater of war.

## The Government's Handling of Issues Related to the Maritime Domain

In 2022, the Israeli government made several moves designed to develop Israel's maritime domain. Led by the National Council on Economy and Society in the Prime Minister's Office and in conjunction with the Directors General Committee of the government ministries, it was determined that: The relative advantages of the Haifa Bay region include knowledge-intensive industry, a naval port and logistics, "green" energy and chemical manufacturing industries ... and the realization of an "Innovation Bay" plan expected to generate considerably more jobs than are currently available there.<sup>6</sup>

The committee went on to recommend forming an economic development authority for the development of Haifa Bay within the Prime Minister's Office tasked with advancing an outline to be defined by government decision.<sup>7</sup>

On July 4, 2022, the National Center of Blue Economy and Innovation was launched with a conference in Haifa, a significant event marking the beginning of implementation of the Directors General Committee decision. Under the terms of the Arrangements Law of 2021/22, the Minister of Innovation, Science, and Technology, Orit Farkash-Hacohen, was asked to instruct the National Council for Civilian Research and Development to articulate national technology and science priorities on which the government would concentrate its civilian research and development efforts over the next five years, as defined in the National Council for Civilian Research and Development Law (§5). To this end, the Council formed a dedicated 17-member commission led by Research and Development Council Chair Prof. Peretz Lavie. The commission undertook an extensive investigation to determine the nation's technology and science priorities. The Maritime Policy & Strategy Research Center in cooperation with the Leon H. Charney School of Maritime Sciences, University of Haifa, presented three subjects to the Council under the rubric of "the sea as

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<sup>6</sup> ["Recommendation of Directors-General Committee to Advance and Develop Haifa Bay"](#), Prime Minister's Office, the National Economic Council, April 26, 2021.

<sup>7</sup> *Ibid.*, p. 85.

a national resource": artificial islands, a blue economy, and mariculture. We are pleased to report that "the sea as a national resource" was selected as one of the five fields the Council chose to prioritize as research topics of national importance for civilian research and development worthy of government investment.<sup>8</sup> This decision, which should be accompanied by a government budget, is highly significant, although in the situation in which Israel finds itself after the last parliamentary election (November 2022), there is no certainty it will be implemented any time soon.

Our insight on the topic is that Israel's 37th government must continue to advance the moves described here under the rubric of "the sea as an Israeli national resource".

Regulating government policy for Israel's maritime domain: The document on Israel's maritime policy in the Mediterranean, which the planning directorate disseminated in December 2018, has not been approved by any political echelon, and certainly not by the Israeli government. At present, there is an inter-ministerial team of directors general addressing the recommendations and working to turn them into a program.

The "Maritime Regions" bill (2017) has been before the Knesset Economic Affairs Committee in preparation for its second and third reading for five years and has yet to be approved. The purpose of the law is: To define the maritime regions near Israel's shores, including the littoral waters, internal waters, adjacent region, and Israel's exclusive economic region (to be collective known as "Israel's maritime regions"), as well as to anchor Israel's rights and jurisdictions in them, including by way of setting statutory provisions that will apply there and at naval installations therein, all in accordance with the provisions of international law, to attain *inter alia* the following objectives: defining the various maritime domains adjacent to the State of Israel and determining the rights and jurisdiction of state authorities as well as other institutions in those areas.<sup>9</sup>

The Knesset's delay in passing the law is damaging Israel's ability to govern its maritime regions.

Our insight on the subject is that Israel's 37th government should establish as one of its objectives the commencement of formulating a national maritime strategy for Israel's maritime domain after government approval of policies, objectives, and maritime security strategy and government approval of a marine spatial planning program. Furthermore, the Knesset must complete the legislation of the "Maritime Regions" bill (2017) to define the various maritime areas adjacent to Israel. A new section relating to the policy document

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<sup>8</sup> National Council for Civilian R&D, the committee to formulate topics for national R&D priorities, "[Decision on National Priorities for Civilian R&D in Israel](#)", August 2022, p. 12 [Hebrew].

<sup>9</sup> [Draft of law: Maritime Regions](#), 2017 (in Hebrew).

must determine the authority of the entity responsible for marine spatial planning and the rights and jurisdictions of state authorities and other bodies in those regions.

## Developing and Protecting Israel's Natural Gas Resources

In the wake of Russia stopping the flow of gas through Nord Stream 1 for maintenance and not yet returning it to operation, and following underwater explosions at two pipelines, the price of gas has skyrocketed. The demand for gas from sources other than Russia has also increased. Accordingly, the Israeli gas market can expect to greatly increase the rate of natural gas exports to European nations (through Egypt) after Israel, Egypt, and the EU signed an unprecedented memorandum of understanding in June 2022. This agreement was entered into against the backdrop of a global energy crisis that is especially problematic for Europe because of the continued fighting between Ukraine and Russia and the sanctions against the latter. The signatories were Energy Minister Karine Elharrar, Egypt's Oil and Natural Resources Minister Tariq al-Mula, and European Commission President Ursula von der Leyen. The memorandum was signed during a meeting of the [Eastern Mediterranean Gas Forum](#) (EMGF).

This memorandum of understanding includes agreements on preserving Israel's interest in its natural gas reserves – Karish-Tanin, Leviathan, and Tamar – in such a way that preserves Israel's energy security, including giving priority to the needs of its domestic market. The agreement between Israel, Egypt, and the EU relates to the flow of natural gas from Israel to Egypt, where it will undergo a process of liquefaction; the liquid form will then be sent via tankers by sea to Europe.

In October 2022, Cyprus and Greece launched the construction stage of the EuroAsia Interconnector, an underwater cable financed by the EU that will cross the Mediterranean with up to 2,000 MW of electricity to eventually connect electrical grids in Israel and Cyprus to Greece. At this point, only the first phase of the project between Cyprus and Greece has been approved. The EuroAsia Interconnector is another key infrastructure project strengthening the energy security of the EU by connecting Cyprus to the EU's electrical grid.<sup>10</sup>

In 2021, the Israeli government set a new goal of having thirty percent of its electricity produced by renewable sources by 2030. However, the goal seems very ambitious. Israel has not met its much more modest interim goal for 2020 (10 percent of electricity produced by wind and solar power). In November 2022, Israel, Jordan, the United States, and the UAE signed a memorandum of understanding to promote a solar power station

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<sup>10</sup> "[East Med Gas Could Help Ease Europe's Energy Crunch with Right Funding – Officials](#)", *Reuters*, October 14, 2022.

in Jordan and a desalination plant in Israel for electricity and water cooperation between the two nations. This is an important step and aligns with the interests of all sides, because stability in Jordan and meeting its water needs are an Israeli interest. Also important are Israel's ability to purchase clean electricity from Jordan and to overcome the scarcity of land in the country for generating electricity.<sup>11</sup> In December 2022, after settling the maritime border between Israel and Lebanon, the Israeli Energy Ministry issued its fourth tender to search for gas in Israel's EEZ. After an environmental strategic survey, the Energy Ministry announced that all searches would take place only at a distance of 40 km. or more from shore. Hence, Israel should continue searching for additional gas reserves at sea while also building facilities to produce renewable energy.

**The Israel Citizens' Fund (Wealth Fund):** In a Knesset debate held on June 14, 2022, Amir Katznelson, the finance minister's economic advisor and the Council secretary, noted that "As of June 1 this year, NIS 1.14 billion have accumulated in the fund. The finance minister has signed a directive to begin operating the fund. An annual budget of NIS 3 million has been allocated to operate it".<sup>12</sup> This sum is lower than the Bank of Israel's forecast, according to which some NIS 3.8 billion would be funneled to the Wealth Fund from the natural gas revenues between 2018 and 2022.<sup>13</sup> The reason for the discrepancy is additional search and development costs at the Tamar gas field.

Our insight on these matters is that in tandem with establishing alternative energy facilities, Israel should continue developing its gas fields, as this resource will be with us for many more years. Israel should also build one large power station operated by natural gas (in addition to solar power stations) in order to ensure that it will meet its growing electricity demand by 2030, and thereby strengthen its foreign policy through the EMGF, of which it is a member. It is also critical to direct the sums starting to accumulate in the Wealth Fund toward training scientific and technological personnel who will be able to face the challenges this domain poses to the State of Israel.

## Protecting Israel's Energy Production Infrastructures

The downing of the drone Hizballah launched at the Karish reserve production rig in July 2022 was an Israeli Navy success; it achieved its mission of protecting the nation's energy

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<sup>11</sup> Energy Ministry, Spokesperson's Announcement, "[Leading Israeli Climate Initiative Just Signed: Energy Ministry Continues to Advance Prosperity Projects to Purchase Green Electricity from Jordan and Sell Water to Jordan](#)", November 8, 2022.

<sup>12</sup> Special Committee on the Israel Wealth Fund, "[Report Issued by Yarom Ari'av, Chair of the Israel Citizens Fund Investment Committee on the Start of Wealth Fund's Operations](#)", *Knesset Website*, June 14, 2022.

<sup>13</sup> "[Energy Market Goal for 2030](#)", Executive Summary, State of Israel – Energy Ministry, 2018.

infrastructures at sea. Israel downplayed the event so as not to disrupt the progress of the negotiations it was then conducting with Lebanon (with U.S. mediation) over settling their maritime border. Nevertheless, it is surprising that the ensuing public debate did not question why Israel chose to place the Karish rig in such a sensitive location that requires the allocation of so many resources to secure it. Obviously, had the rig been built south of its current location, it would have been possible to protect it better and at a lower cost. Furthermore, the placement of the rig during the midst of the talks was predictably seen by the Lebanese as an attempt to set facts on the ground.

The Leviathan reserve production rig, whose production potential is ten times that of Karish and Tanin, was at first meant to be located above the gas field located 120 km from Israel's shores. Only at a later stage it was moved into Israel's territorial waters west of Dor Beach. The Energy Ministry, which advocated for this move, then claimed that it was preferable to place the production rig in Israel's territorial waters to provide maximal protection for Israel's energy security as well as ensure reliability and redundancy. In August 2018, the security establishment joined in support of this demand, even though four years earlier it had ordered Sa'ar 6-class corvettes, designed to defend production rigs far from Israel's shores. As a result, despite protests from local inhabitants that the location might pose risks to them, the production platform was placed 10 km. from shore.

Concerning the location of the Karish production rig, the Energy Ministry claims that placing the production facility near the reserve reduces the length of the pipes and auxiliary support systems, and that the presence of the platform near other potential gas fields will make possible relatively simple connections to future reserves. Still, the ministry agrees that its considerable distance from the shore reduces risks to the population and to activities near the shore – a distance that prevents defacing of the landscape and eliminates noise and air pollution.

Clearly, no analysis of alternatives that takes into account all the relevant factors has been undertaken to determine the optimal location of infrastructure facilities in Israel's maritime domain; that is, an analysis considering both the security and ecological ramifications of placing a production rig near the shore.<sup>14</sup> The series of explosions and leaks that occurred at Nord Stream 1 and Nord Stream 2 in the Baltic Sea on September 26, 2022 have created a new reality in which securing facilities and infrastructures for extracting gas from the sea must consider additional threat scenarios of greater

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<sup>14</sup> Nir Zarhi, "[Vulnerability Analysis of Alternative Systems for Maritime Handling of Natural Gas: The Case of Security Threats against the Dor Facility](#)", paper for the Zichron Yaakov Local Council, July 2018 [Hebrew].

complexity than ever before.<sup>15</sup> In October 2021, the U.S. Naval Forces Central Command (NAVCENT) established a new taskforce, Taskforce 59, to enable the rapid integration of unmanned systems and artificial intelligence with naval actions in the Fifth Fleet's area of operation in the Persian Gulf, Red Sea, Arabian Sea, and parts of the Indian Ocean. According to U.S. Navy Vice Admiral Charles Bradford "Brad" Cooper II, Commander, United States Fifth Fleet, the geography, climate, and unique strategic importance of the Fifth Fleet's zone of operations offer an ideal environment for innovation. Cooper also stated that launching Taskforce 59 strengthens the fleet's cooperative programs in this area, because the fleet, via the taskforce, is expanding the operational picture it shares with its partners in the area.<sup>16</sup> In September 2022, the U.S. Navy and the Israeli Navy held a joint exercise in the Gulf of Aqaba/Eilat where the Israeli Navy was shown the capabilities of Taskforce 59, which integrates manned and unmanned surface platforms of the Saildrone Explorer and Devil Ray T-38 types. The Israeli Navy, which in the past was a leader in technological innovation, must begin to develop or equip itself with such platforms to upgrade its capabilities for defending Israel's critical infrastructures located in its maritime domain against a wide range of emerging threats.

Our insight on the topic is that in addition to securing the current gas fields by the Israeli Navy, Israel must undertake a vulnerability analysis of the alternatives for processing natural gas at sea and include other possible scenarios that could be implemented should there be further discoveries of gas reserves and the emergence of new threats as a result. In addition, Israel must also examine means for securing underwater communications cables connecting Israel with Europe and determine the best way to protect them. For all these, it is necessary to examine the use of unmanned vessels, both above and under water, which could serve as an effective operational response to the scenarios described herein and which have already passed the stage of operational proof in other advanced navies.

## The Israeli Navy's Deal to Purchase Submarines and Surface Vessels

In May 2022, the Israeli government decided to establish a state commission of inquiry to examine the following: the agreements or purchase processes of the Sa'ar 6 corvettes, AIP submarines, anti-submarine boats; the privatization of the Israeli Navy's shipyards; and

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<sup>15</sup> NAVCENT Public Affairs. (2021) *U.S. and Israel Complete Unmanned Exercise in the Gulf of Aqaba*. U.S. Naval Forces Central Command / U.S. Fifth Fleet.

<sup>16</sup> [Task Force 59: Creating Maritime Capabilities for the 5th Fleet Area of Operations](#), *Second Line of Defense*, October 24, 2021.

Israel's agreement that a German submarine be sold to a third party.<sup>17</sup> The government determined that the commission, to be chaired by former President of Israel's Supreme Court, Justice Asher Grunis, would investigate the purchase processes of the naval vessels, including the work processes of the professionals involved and the decision-making processes of the political echelon regarding the purchases or deal. The commission, tasked with issuing a report on the results of its investigation and recommendations, was also empowered to render an opinion on existing procedures relevant to these matters. Given the importance of the issues under inquiry and the urgency of its recommendations, the commission was to submit its report to the government at the earliest opportunity and would determine its work processes accordingly. At the time of this writing, more than seven months have passed since the 36th government announced the launching of the commission, but it is still focused on gathering and studying materials. With the establishment of the 37th government, concerns have been expressed on the continuation of the commission's work. The conclusions and lessons of such a commission for possible future purchases are most critical for the Israeli security establishment in general and for the Israeli Navy in particular.

Our insight on the matter is that regardless of the outcome of the most recent parliamentary election and the change in government, it is necessary that the commission in its current constellation continue its work and submit its recommendations to the Israeli government, irrespective of other processes in the Israeli legal system.

## Demarcation of Israel's Maritime Border with Lebanon

On August 10, 2021, the U.S. Secretary of State announced the appointment of Amos Hochstein as [Special Envoy and Coordinator for International Energy Affairs](#). It was decided that he would deal with the Israeli-Lebanese dispute over their maritime border, among other issues. As Hochstein began mediating between the sides, media reports made it clear that the intention this time was to resolve both the border question and the resource question. Faced with a strict time frame due to the end of the Lebanese president's term at the end of October 2022 and Israel's parliamentary election on November 1, 2022, the talks proceeded at an intense pace. Indeed, on October 12, 2022, the government approved the agreement and placed it before the Knesset and it was authorized on October 27. In the intervening time, the High Court of Justice denied petitions regarding the procedure of authorizing the agreement.

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<sup>17</sup> Prime Minister's Office, [Decision No. 4015](#), "The Establishment of a State Commission of Inquiry on the Deals and/or Purchase Processes of the Saar 6 Gunboats, AIP Submarines, Anti-submarine Boats, the Privatization of the IN's shipyards, and Israel's Agreement that a German Submarine be Sold to a Third Party – Amendment to Government Decision", May 4, 2022.



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On October 19, 2022, the Knesset Foreign Affairs and Security Committee met to discuss the agreement. The director of the National Security Council (NSC), the director general of the Foreign Affairs Ministry, and the director general of the Energy Ministry explained the contents of the agreement, how it was achieved, and its implications. Their statements can shed light on the negotiation processes as well as what they considered achievements. The NSC director noted the directive the government gave the negotiating team, namely: to preserve all of Israel's security interests so that an agreed-upon international borderline would be drawn; to create strategic stability for the Israeli and Lebanese parallel rigs in order to prevent unwanted escalation or routine friction; and to ensure the security of the nation's energy infrastructures and its energy continuity, i.e., not allow anything to interfere with gas production at Karish as the result of various measures taken regarding it. The director general of the Foreign Affairs Ministry added the importance of creating an agreed-upon international borderline with an enemy state.

The maritime border is marked using four maritime coordinates and severs the dependence on a starting point of the land borderline and a maritime borderline for the sake of the agreement alone, without the sides conceding their legal claims on the matter. The maritime borderline between Israel and Lebanon is built on two complexes: the "buoy line" route and the maritime borderline marked by four naval coordinates, which begin at the end of the buoy line, whose length extends to Point 23 at the edge of the EEZs of the two sides.

It is our opinion that the maritime border preserves Israel's security interests as defined by the government, including the NSC, the IDF, and the Israeli Navy. This is the first time a maritime border agreement has been signed with an enemy state without the agreement being a peace treaty. The agreement determines that this maritime border will establish "a permanent and equitable resolution of [the parties'] maritime dispute."<sup>18</sup> The coordinates of the maritime border will be submitted to the United Nations and serve as international reference to the validity of the agreement. In practice, the maritime border ends Lebanese claims to maritime areas and resources located in the exclusive economic zone on the Israeli side.

Another article in the agreement deals with the development of the Sidon-Qana gas field, a reserve straddling the border between the two nations. On November 15, 2022, the Israeli Ministry of Energy announced that an agreement had been signed with TotalEnergies of France and Eni of Italy that defines the principles upon which exploration drilling will be carried out near the Israeli border. This agreement, signed as a follow-up to a prior initial agreement, defines the following principles: the companies will undertake

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<sup>18</sup> Full text of the agreement is available on the [Knesset](#) website.

an assessment to determine the size of the field and how it is distributed between Israel and Lebanon; any disagreement that arises will be decided by an outside consultant agreed upon by both parties; the detailed agreement determining the consideration to be paid to Israel will be formulated only after this stage is completed; and there will be no development at the field before the detailed agreement is signed and the consideration (in whole or in part) is transferred to Israel.

Our insight on the issue is that the process has once again demonstrated that the maritime domain allows for flexibility and creativity that cannot be found on the ground or in the air. The possibilities in this domain are varied, from natural resources (both energy and water for desalination), through renewable energies, to creating new joint infrastructures. In the future, Israel's maritime domain will allow the country to expand its infrastructures and serve as a source of new cooperative ventures with its neighbors. The maritime border agreement with Lebanon should be the first milestone in thinking about and exploiting the maritime domain. Now that the agreement has been signed, Israel would be advised to focus on two national objectives. The first objective is to create a policy and strategy regarding the maritime domain, borders, and future plans for use. Israel must recognize the maritime resource and regulate it in accordance with a vision for the future. First and foremost, Israel must pass a maritime zones law in which it defines its methods for determining its maritime borders. It is necessary to determine the point of the land border from which the maritime border with Lebanon begins, a point left vague in the current agreement and which might prove to become a future problem. A policy on the maritime border at the Gaza Strip, over which there is a disagreement with the Palestinian Authority must be articulated. A policy on Israel's maritime infrastructures and how to defend them must also be determined. Thought must be given to the location of future gas development rigs; they must be located in such a way that threats are minimized and the ability to defend them is improved, which is what should have been done in the case of the Karish platform before it was built.

Israel's second objective must be to acknowledge that the maritime domain is unique in that it allows cooperative ventures that challenge the conventional paradigms of enemy state, as the agreement with Lebanon demonstrates. Even if some feel that the division of the field is disadvantageous to Israel, the important principle is that there will be future exploration and production at the gas field located in the cross-border area, even if indirect. Other examples include joint ventures to exploit natural resources in the eastern part of the Mediterranean Basin currently being formulated, such as the joint forum for Cyprus, Greece, Egypt, Israel, and the PA on energy resources and the possibility of their joint development, and the surprising rapprochement between Israel and Turkey over the past year, stemming primarily from the possibility of working together to export gas to Europe.

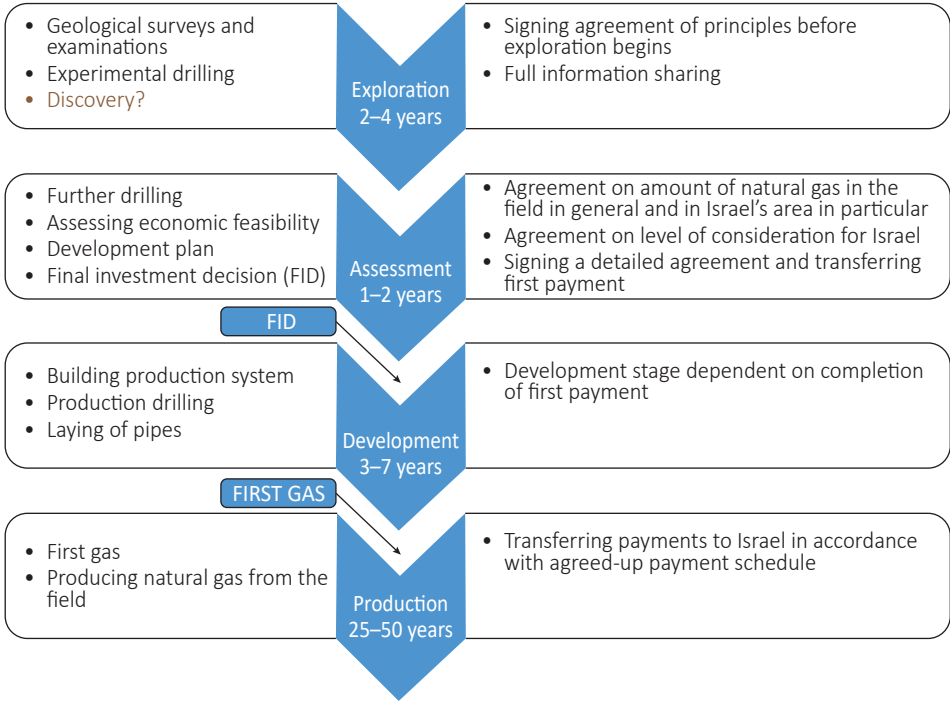


Figure 1: Stages of development and agreement milestones (source: Energy Ministry)

## Challenges to Israeli Navigation in the Red and Arabian Seas

Following Iranian attacks on several ships with ties to Israel that were sailing in the Gulf of Aden and the Gulf of Oman in the first half of 2021, Israel forged closer cooperation between the Israeli Navy and the Fifth Fleet. The joint exercises they held in 2022 were in part a reflection of Israel's concern over an increased Iranian presence in the Red Sea. Despite these close ties, the Iranian Revolutionary Guard Corps (commonly known as the Revolutionary Guards, or the IRGC), renewed its activities and on November 15, 2022, attacked the *Pacific Zircon* oil tanker sailing out of Singapore under a Liberian flag and partially owned by Israeli businessman Idan Ofer. At the time of the targeted attack by the IRGC, the tanker was sailing 150 miles off the coast of Oman. Although relatively little damage was inflicted and no lives were lost, the attack made it clear that Iran has identified this type of operation as having a reasonable chance of inflicting harm on Israel for actions Israel carries out against Iran elsewhere. This issue requires a situation assessment by the Israeli Navy and Israel's entire security establishment regarding what steps can be taken to prevent the recurrence of such incidents.

The ongoing war between Russia and Ukraine, during which the Turks have closed the Bosphorus and Dardanelles straits, and the continued activities of the Houthi rebels in the Bab al-Mandab area, demonstrate the vulnerability that chokepoints pose to freedom of navigation.

The recently completed talks over marking the maritime border between Israel and Lebanon once again showed the importance of conducting negotiations through a mediator and of guarantees provided to Israel in the absence of diplomatic relations. In this light, we should examine recent developments in the Straits of Tiran, where Saudi Arabia has regained sovereignty (including the islands). In so doing, the kingdom was expected to "respect" the Israeli-Egyptian peace treaty insofar as it pertains to this area, despite not having been a signatory to it. Addressing this point, Saudi Arabia announced it does not see itself as obligated by the treaty and made it clear that it views the international observers operating in the islands to secure the treaty as a foreign force operating in its sovereign territory. As early as 2017, we at the Maritime Policy & Strategy Research Center at the University of Haifa pointed out that, from Israel's perspective, the situation in the area over which Saudi Arabia has regained sovereignty has reverted to the days before the outbreak of the Six-Day War. There is a clear and present danger of the situation deteriorating in terms of freedom of navigation through the straits, and we are convinced that Israel must strive to restore order there. During President Biden's visit to the region in July 2022, there were media reports indicating that by the end of the year the observer force would leave the islands and Saudi Arabia and relocate in Sharm a-Sheikh, from where it could continue carrying out its mission by means of long-distance observation. It is not clear what guarantees the United States provided Israel for ensuring freedom of navigation there. It is also unclear what the Israeli government's position was regarding the process or the nature of the agreements signed. Now that relations between Saudi Arabia and the United States are strained, it may be time to reexamine these understandings, reality having taught us about the fragility of agreements in the region.

Our insight on the topic is that Israel must closely follow emerging changes in these regions, especially in the Red Sea and Gulf of Aden, and articulate a policy for maritime trade, freedom and security of navigation, and the use of the maritime domain to realize its strategic objectives. Given the increased importance of this region for Israeli commerce and, at the same time, the growing threats against it, Israel must also examine its policy on force construction and deployment in the Red Sea, an issue of growing significance. Learning from the talks over drawing the maritime borderline between Israel and Lebanon, Israel must be cautious in conceding guarantees given in the peace treaty

with Egypt regarding freedom of navigation through the Straits of Tiran, especially given the fact that U.S.-Saudi relations are not at their best.

## Shipping and Ports: Israel's Seaports

Implementing the landlord model at Israel's seaports is an important step toward creating efficient, competitive seaports providing a high level of service to those involved in Israel's foreign trade. The method is based on the principle of separating the development of national infrastructures, which is carried out by the state, and the routine operation of the various terminals of a port, which is conducted by private companies competing with one another.

Haifa Bayport Terminal, inaugurated in early September 2021, is capable of unloading container ships carrying up to 18,000 containers. In October 2022, ZIM, Israel's international shipping and cargo company, which until then had operated in the government-run Haifa Port, decided to move two of its five ship lines to Haifa Bayport. This move is a clear message to Haifa Port, as ZIM's five lines constitute 20 percent of the port's cargo container operations. In the months before ZIM's departure, the port's activity had already dropped to an unprecedented low.<sup>19</sup> The Southport Terminal in the Port of Ashdod was opened for a test run before the summer of 2021; the first ship arrived at its docks in February 2022. In late 2022, the terminal has begun to step up its level of activity, but it is still far from realizing its shipping container potential. In February 2022, the terminal began handling general cargo ships on the basis of special approval it received from the Ministries of Transportation and Finance to help ease the general cargo ship congestion. Despite the heavy workload at Israeli seaports, there are at least three piers that are not being used (Piers 7 and 8 at Haifa Bayport and Pier 28 at Southport). The Israel Shipyards Port in Haifa is administratively limited to not exceed 5 percent of the scope of activity at Haifa Port.

The "traffic jam" at Israel's ports started to ease in mid-2022. The major reason was serious concern over a recession, which led to a halt in the purchase of iron, a product used primarily in construction (Figure 2). Based on government data, it seems there is no link between the emerging end of the ship "traffic jam" and the decision by the ministers of finance and transportation to open the three piers at the private ports. Haifa Bayport's

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<sup>19</sup> Omer Carmon, "[Hatahрут mithamemet: ZIM ma'avira oniyot lin'mal hamifrats upe'ilut n'mal Haifa beshefel](#)" (Hebrew) ["Competition heats up: ZIM moving ships to Haifa Bayport as activity at Haifa port hits low"], *The Marker*, October 26, 2022.

promise that it could handle seven to ten general cargo ships weekly if the state would allow it to operate two more piers ultimately did not materialize.<sup>20</sup>

In November 2022, the financing deal to buy the Haifa port was closed. The Adani Group and the Gadot Group, whose joint bid was awarded the tender in July 2022, announced that they wanted to purchase the port in full for a total price of NIS 4.1 billion.<sup>21</sup> Financial experts expressed concern that the deal was too highly leveraged and that its business model was to function as an income-yielding real estate company within the port; in effect, to engage in commerce, which, to an extent, is in conflict with the port's operational and infrastructure concerns.

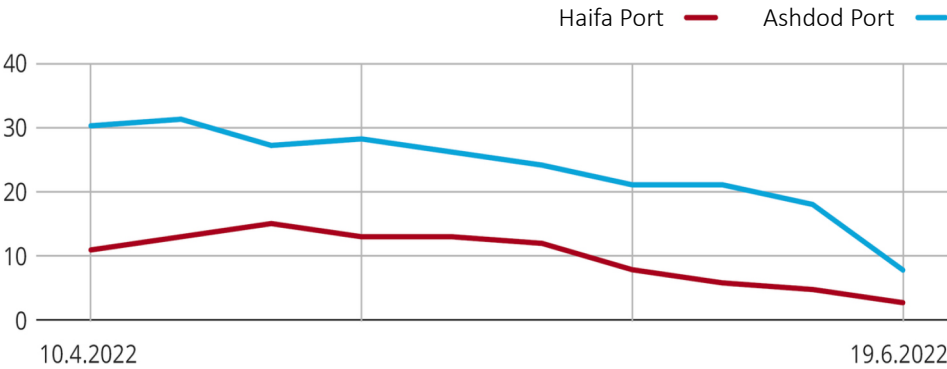


Figure 2: Number of ships waiting outside government ports in Haifa and Ashdod in recent months by weekly average (all types of cargo), 2022 (source: Haifa and Ashdod ports companies)<sup>22</sup>

The Ashdod Port, the only port remaining under government authority, has recently suffered from sanctions by tugboat workers who are employed by the government-owned Israel Ports Company (IPC), resulting in a return of the "traffic jam" to Ashdod's waters until an injunction was issued against the striking workers.

Our insight on the topic is that effort must be made to improve port efficiency with regard to general cargo ships and bulk freighters (bearing bulk cargo such as grain, coal, or metal ore). After gaining experience with private seaport operations, Israel will need

<sup>20</sup> Omer Carmon, "[P'kak ha'oniyot mul nimpley yisrael holekh vedo'ekh akh hasibot lekhakh eynan tovot](#)" (Hebrew), ["Ship jam outside Israeli seaports easing but the reasons aren't good"], *The Marker*, June 22, 2022.

<sup>21</sup> Ro'ee Weinberger, Hezi Sternblit, and Asaf Zagridek, "[Hak'vutsa hahodit hodiya: Nisgra iskat hamimun lir'khishat n'mal Haifa](#)" (Hebrew), ["Indian group announced: Financing deal to buy Haifa port ends"], *Globes*, November 13, 2022.

<sup>22</sup> Carmon, "P'kak".

to determine whether to continue the seaport privatization process and complete the privatization of Ashdod Port to improve efficiency there, or maintain one government-operated seaport.

## Israeli Shipping

Most cargo to and from Israel is shipped by sea. Some 58.1 million tons of good were transported through Israeli ports in 2021; of these, 29 million tons consisted of fuel and coal, most through the energy ports (Hadera and Ashkelon), with the rest going through the commercial ports (those of Haifa, Ashdod, Eilat, and the Israel Shipyards). In 2021, the scope of Israel's foreign trade (excluding diamonds) was estimated at \$137 billion: \$86 billion in imports and \$51 billion in exports. The scope of global maritime trade (in tons) grew by 3.3 percent over the course of 2020. In 2022, the expected increase of trade from 2021 to 2022 was 6.2 percent.<sup>23</sup> In terms of the amount of cargo handled at Israeli ports, the tonnage they handled grew by some 4 percent from 2020 to 2021, with a growth of about 8 percent at the Israel Shipyards Port, followed by the ports of Haifa and Ashdod (6 and 3 percent, respectively).<sup>24</sup> The year 2021 was a very good one, characterized by high profitability for many of the shipyard companies. The steep growth in GDP and its effect on the scope of trade contributed considerably to the increase in maritime shipping costs. Nonetheless, despite the sharp increase in fuel and vessel operations costs, the shippers reaped very high profits.

As of February 2022, Israel owns and controls a fleet of 38 merchant ships; the average age of the fleet is 14.2 years and eight of these ships fly under the Israeli flag. Of Israel's total merchant navy, they represent about 17 percent in tonnage terms and about 20 percent in GRT (gross registered tonnage).<sup>25</sup>

The count of active personnel in Israel's merchant navy is based on all active sailors in the merchant navy (as of January 2022): the total number of active sailors is 387, of whom 106 are Israeli (27 percent); the number of active officers in the merchant navy is 154, of whom 97 are Israeli (63 percent); the number of active cadets in the merchant navy is 21, of whom eight are Israeli; and the number of active ranks in the merchant navy is 212, of whom one is Israeli.

In 2021, 6,429 ships entered Israeli ports (3,142 the Haifa Port, 2,288 the Ashdod Port, 677 the Israel Shipyards Port, and 142 the Eilat Port).<sup>26</sup>

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<sup>23</sup> State of Israel, Transportation Ministry, Shipyards and Ports Authority, Department of Economic Planning and Foreign Relations, *Statistical Yearbook of Shipyards and Ports 2021 (2022)*, p. 8.

<sup>24</sup> *Ibid.*, p. 88.

<sup>25</sup> *Ibid.*, p. 101.

<sup>26</sup> *Ibid.*, p. 105.

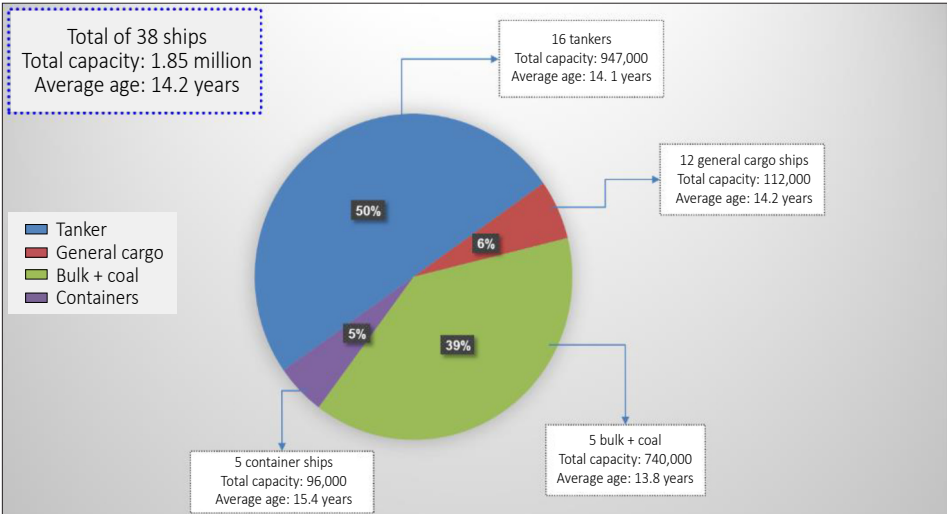


Figure 3: Israel's merchant navy – capacity and age as of January 2022

The state of Israeli shipping continues to be very poor in terms of Israeli personnel serving on the ships, the number of Israeli-owned ships or ships sailing under the Israeli flag, and referring to the new taxation law (occupancy tax), promoted by the Ministries of Finance and Transportation. The law was supposed to go into effect in January 2017, but it was postponed. Now the process of approving it must be started anew, including government approvals and three readings in the Knesset. The law's intent was to support the readiness of Israeli ships and "save Israeli shipping from certain extinction".<sup>27</sup> The law would have made shipping companies pay taxes on the basis of the occupancy of the ships they sail rather than on their profits. In 2004, the Israel Corporation purchased the remainder of ZIM shares still owned by the government, thereby completing ZIM's privatization. The current ownership structure was determined after extensive reorganization processes occurring in 2014. The state does not make a point of safeguarding the "golden shares" it ostensibly holds.<sup>28</sup>

<sup>27</sup> Yoram Zaba, "[\\$110 Billion Gone; The Rules have Changed and a New Era has Begun](#)", President of the Israel Chamber of Shipping at the fifth Day of Shipping, Israel Chamber of Shipping, October 23, 2018 [Hebrew].

<sup>28</sup> The transferability restriction is one of the terms of the state's special share in Zim, known as the golden share, which states that control of Zim or a 24% stake in the company cannot be sold without the state's consent. The purpose of this provision is to prevent Zim being sold to entities hostile to Israel.



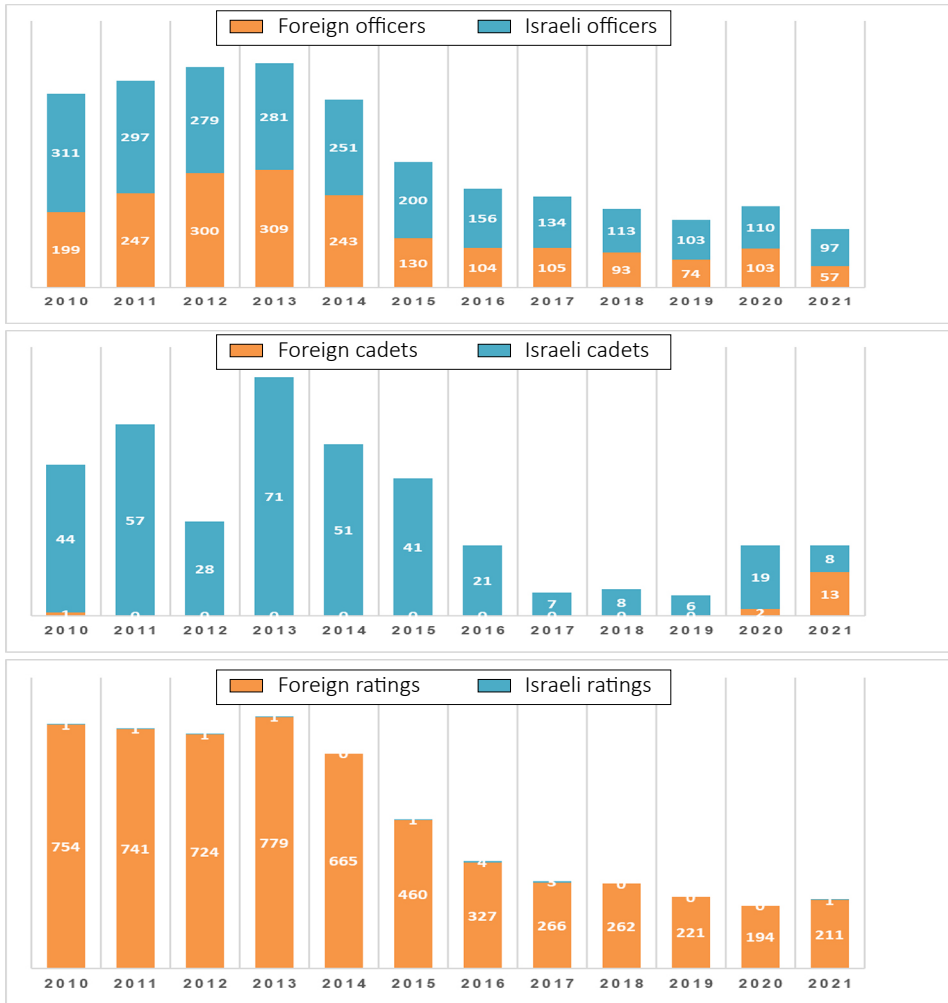


Figure 4: Active sailors in Israel's merchant navy

Our insight on the subject is that shipping in Israel and around the world is undergoing change and therefore the policy set when ZIM was being privatized is now outdated and a new policy must be set as part of Israel's overall maritime policy and strategy. Such a policy must refer to connectivity during emergencies, both in the shipping sector and in the ports sector, as matters cannot be left to develop by chance.

## Israel as a Maritime Startup Nation

Some 80 percent of global trade is conducted by seas, with the economy of the maritime domain creating services and goods worth \$3 trillion annually. Despite these impressive

figures, Israel's innovation sector and startup companies have yet to fully exploit the considerable resources existing in the field around the world.

In August 2021, then-Minister of Innovation, Science, and Technology Orit Farkash-Hacohen asked the National Council for Civilian Research and Development to formulate national priorities for scientific and technological research and development for the next five years. She wrote:

Israel faces significant challenges, which require us to take a series of steps to ensure the nation's technological advantage in research and innovation in the coming years. [Current] research infrastructures do not meet the global standard, Israel lacks significant R&D industries in traditional branches of industry, a great deal of knowledge is trapped in institutions of higher education and does not find its way to industrial companies.

Formulating areas of national priorities in technology and science is critical to ensure, starting today, that science, research, and technology in Israel will develop into subjects on the global agenda in the next decade, in accordance with global trend and Israel's relative advantages and its national needs.

The letter was sent because of a relevant paragraph in the 2021–2022 Adjustments Law, which was added as a result of the minister's request. Farkash-Hacohen demanded that the Council submit its recommendation in cooperation with the Planning and Budgeting Committee, the Innovation Authority, the Ministry of Finance, and the Ministry of Defense within 180 days and include the topics that would be at the forefront of global innovation over the coming decade: "...subjects in which Israel has a relative advantage and/or strategic need and subjects that will make a significant contribution to maintaining Israel's standing as a scientific and research leader".<sup>29</sup>

Another event of importance was the inauguration of the National Center of Blue Economy and Innovation in Haifa, which took place on July 4, 2022, where Haifa was declared as the nation's center for the development of a blue economy. "Blue economy" or "blue growth" is also integral to maritime security, as management strategies require a secure maritime environment that provide the prerequisites for managing marine resources. According to the European Commission, the "blue economy" is a long-term strategy designed to support sustainable growth in maritime branches as a whole. The sea is an asset for the Israeli economy and holds great potential for innovation and growth.<sup>30</sup>

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<sup>29</sup> Hagar Rabat, "[Sarat hamada Farkash-Hacohen: Likbo'a t'humev adifut le'umit tekhnologi'im](#)" (Hebrew), ["Science Minister Farkash-Hacohen: Set national technological priorities"], *Calcalist*, August 25, 2021.

<sup>30</sup> Christian Bueger, "[What Is Maritime Security?](#)" *Maritime Policy*, 53, no. 1 (2015): 161–164.



Figure 5: Israel's five prioritized R&D subjects

Our insight on the subject is that, regardless of changes in the government, the Minister of Innovation, Science, and Technology must adopt this decision and ensure that the budgetary source to realize it is made available to the ministry. The minister must also ensure that a multi-year plan for its implementation is formulated.

## Preparing to Meet Cyberspace Challenges

The global economy is almost fully dependent on maritime trade. The results of damage to the maritime supply chain from a cyber-attack are therefore not limited to a few branches of manufacturing dependent on raw materials. Such an attack has ramifications for an extremely long list of consumer goods that depend on this supply chain. The appearance of cyber-threats as part of asymmetrical and hybrid forms of warfare in the maritime domain, both in terms of information technology and in terms of operational technology, and while involving private entities and advanced technologies to gain strategic value, makes the maritime domain highly vulnerable. In the last decade, shipping, ports, and gas and energy production facilities have become highly dependent on computerized control systems based on operational technologies that make it very difficult to analyze the implications and losses caused in practice by maritime cyber-attacks.

Planning the response to a cyber-threat in the maritime domain must be reflected in training, building technical countermeasures, and operating at the organizational level to defend the specific vessel's cyberspace. Planning for this must be integrated into the traditional fleet structure.<sup>31</sup> The consequences of the Russian-Ukrainian war, the damage to the Nord Stream infrastructures in the Baltic Sea, the numerous cyber-attacks on critical systems, and the most recent discoveries of gas in the eastern part of the Mediterranean in general and across from Israel's coast in particular have all placed the topic of maritime energy infrastructures on the public agenda in terms of strategy, security, the economy, the environment, and politics, and marked them as high-value targets for cyber-attack. Technological developments in the maritime industry, the dependence and unique nature of operational computer systems, most of which are not protected against cyber-threats, the high level of connectivity among systems, the complexity of the threats, and the strategic importance of maritime energy infrastructures to Israel's energy security and economy bring into stark relief the geostrategic and geopolitical implications of maritime cyberspace and its ramifications for the region as a whole.

Our insights on the subject for the relevant decision makers and regulatory agencies in Israel are that they should make regulation in the field binding, while focusing on the major technological weaknesses, tightening supervision of the platform owners and energy companies operating in Israel's territorial waters and its EEZ in the context of cyber-defense, and building a multisystem and inter-ministerial working plan. Such a plan should enable the state to face reference scenarios, from a cyber-attack on an energy infrastructure operating off Israel's shores to widespread damage and aftershocks to human life, the environment, the economy, and security.

### National Preparations for Civilian Emergencies in the Maritime Domain

The devastating tar spill in the Mediterranean, considered a mid-range maritime pollution incident, began on February 17, 2021, and caused an environmental disaster to the coasts, sea, and nature along Israel's entire Mediterranean coastline. The incident was caused by tar from crude oil washing up on Israeli shores. The oil spill at sea forced the authorities to close all beaches from Rosh Hanikra in the north to Ashkelon in the south. About a month later, the Environmental Protection Ministry lowered the emergency status of the beaches to 1, thus allowing the public to return to most of them.<sup>32</sup> In the wake of

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<sup>31</sup> Peter Dombrowski and Chris C. Demchak, "Cyber War, Cybered Conflict, and the Maritime Domain", *Naval War College Review* 67, no. 2 (2014): 7.

<sup>32</sup> "[Tar in a Storm: Environmental Protection Ministry Works to Identify Source for Severe Pollution at Sea that Covered Israel's Shores in Tar](#)", National Marine Environmental Protection Unit, Environmental Protection Ministry, February 22, 2021.

the incident, the Environmental Protection Ministry submitted a memorandum entitled "Preparedness and Response to Incidents of Oil Pollution at Sea and on Shore, 2021" intended as a response to similar incidents in the future regarding "preparing emergency plans and establishing a mechanism for international cooperation".<sup>33</sup> The Maritime Policy & Strategic Research Center and the Minerva Center for the Rule of Law under Extreme Conditions at the University of Haifa read the memorandum of the bill, found it lacking in several respects, and submitted their reservations to the Justice Ministry.<sup>34</sup> In order to enhance the understanding of how to confront such scenarios, the topic of dealing with pollution and civilian disasters at sea was selected to headline the annual conference of the Wydra Division of Shipping and Ports held in September 2021.

Although the memorandum was published in March 2021 and was closed to public comments in May 2021, as of the time of this writing, no bill has been placed before the Knesset to complete the legislation. Furthermore, despite a 2008 government decision regarding the need to adopt a national plan to handle oil pollution at sea and to anchor it in law, and notwithstanding actions the government took in this direction, there is currently no law codifying a national plan and no budget to enforce it.<sup>35</sup>

Our insights on the subject are that the sea is a unique domain in many ways and that action in the marine environment requires professional expertise and dedicated tools. Today, most of Israel's capabilities in the maritime domain are in the hands of the Israeli Navy, while other institutions (the Israel Police, firefighters, search and rescue outfits, and environmental protection agencies) possess dedicated capabilities that are more limited than what is generally required to handle a large-scale incident. Such an event would have to be defined as a "civilian emergency", meaning an incident that "severely harms public wellbeing, life, or property of a large population or large area, or threatens such harm, including natural disasters, environmental disasters, a toxic materials disaster, chemical or biological disasters, radiological disasters, accidents, or hostile sabotage".<sup>36</sup> Unlike other nations, Israel does not have a coast guard charged with constabulary work, rescue operations, the management of toxic materials spills, and so on. Israel needs one

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<sup>33</sup> "[Memorandum on 2021 Law: Preparedness and Response to Incidents of Oil Pollution at Sea and on Shore](#)", Justice Ministry, Government Legislation Website, March 29, 2021.

<sup>34</sup> Ibid, "Comments by Maritime Policy & Strategy Research Center, the National Knowledge and Research Center for Emergency Readiness, and the Minerva Center for the Rule of Law under Extreme Conditions", April 28, 2021.

<sup>35</sup> Osnat Algom Mizrahi, "[Readiness for Incidents of Pollution at Sea: Background to Discussion](#)", Knesset Research and Information Center, February 27, 2022, p. 2 [Hebrew].

<sup>36</sup> "[Law: Amendment of Police Order \(No. 34\) 2018, Paragraph 2701](#)", p. 252, March 12, 2018, *Knesset Website* [Hebrew].

body to manage policy for the maritime domain and routine regulation of activity therein; the same body should be responsible for managing emergencies at sea and on shore. Given the capabilities the Israeli Navy has developed as the body charged with protecting Israel's economic waters (and the resources allocated to that end), Israel should place responsibility on the Israeli Navy for drawing up a comprehensive maritime overview. First responders could then operate on the basis of their areas of expertise. Israel must develop its preparedness to confront a wider range of civilian emergencies in the nation's maritime domain by means of the national plan to handle oil pollution at sea.<sup>37</sup> Israel's 37th government needs to complete the process of legislation in the Knesset, including arranging areas of responsibility and allocating appropriate budgets.

## Preparing for Climate Change

In recent years, many nations have shown greater interest in the effects of climate change not only from the civilian perspective but also from a security perspective, a topic that is increasingly on the agenda of policy makers. The prevailing opinion in the West is that changes in climate must be seen as an existential security crisis. Thus, the defense budget proposal brought before the U.S. Congress for approval for 2021 included \$617 million for climate change mitigation and readiness.<sup>38</sup>

Government Decision No. 4079 from July 2018 on Israel's preparations to adapt to climate change contained a directive to the security establishment, including the IDF and the National Emergency Management Authority (NEMA), to prepare for climate change.<sup>39</sup> The document of recommendations for a national plan to prepare for the ramifications of climate change, approved by the government in July 2018, also mentions the possible impact of climate change on security:

The impact on the defense establishment will be extensive. It can be expected to include logistics (adapting uniforms, emergency reserves store units, location of military bases, sealing borders), armaments (adapting vehicles and components), engineering (mines), **the navy (rising sea level and defending energy sources)**, the medical corps (diseases, training times, and so on), manpower (expanding the Israel Border Police, the police in general, and so on), the Israel Air Force (IAF) (changing

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<sup>37</sup> The Ministry of Environmental Protection published a memorandum of law on [preparedness and response to incidents of sea pollution and the coastal environment in oil](#).

<sup>38</sup> *US Department of Defense (DoD), The Department of Defense Releases the President's Fiscal Year 2022 Defense Budget*, May 28, 2021.

<sup>39</sup> "Decision No. 4079 of the 34th Government: Israel's Preparations for Climate Change – Implementation of Recommendations to Government and a National Action Plan", July 29, 2018.

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training times, adapting IAF activity to extreme weather conditions, and training/participating in missions such as extinguishing fires, locally and internationally).<sup>40</sup>

The decision also established the need to establish "a national computation center with high processing capacity to be used for running high-resolution climate simulations, examining various scenarios and their possible implications, simulating the effects of different branches, and simulating the effectiveness of various adaptation methods. This resource should be at the disposal of all academic and government entities". The Climate Authority's report of April 2021 recommended the government implement its decision on establishing a national center for climate calculations and invest NIS 15 million in a super-computer to forecast climate changes and their effect on our region. This has yet to be done.<sup>41</sup>

At the end of October 2022, the Copernicus Observation Programme for Climate Change of the EU published a report stating that the summer of 2022 was the hottest in Europe in documented history. According to Copernicus, the average temperature in Europe that summer was the highest ever recorded both throughout the summer, i.e., between June and August, and in the month of August itself. The temperatures were higher than those of the summer of 2021 by 0.4 degrees Celsius. The report warns that extreme weather events, such as heat waves, extended droughts, and heavy rains, will only become worse and more frequent as Earth continues to become hotter.<sup>42</sup> The Israel Meteorological Service announced that August 2022 was the sixth hottest measured since the establishment of the state; only five had been hotter. Israel is heating up twice as fast as the global average, but is lagging behind when it comes to preparation and taking steps to mitigate the trend. Nir Stav, Director of the Israel Meteorological Service, recently issued a warning saying that future extreme heat waves could result in temperatures of 50 degrees Celsius, yet the authorities have no plans to deal with such emergencies.

Between November 6 and 18, 2022, the Conference of the Parties (COP) met in Sharm a-Sheikh. COP is the annual conference of the United Nations Framework Convention on Climate Change, the largest U.N.-sponsored event. It drew some 37,000 official participants as well as approximately 100,000 civil society representatives. The conference objective was to coordinate global efforts to prevent a climate crisis and adapt to climate change.

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<sup>40</sup> Environmental Protection Ministry, "Israel's Preparations for Climate Change – Implementation of Recommendations to Government and a National Action Plan", December 31, 2017.

<sup>41</sup> "The Climate Change Preparation Authority, Environmental Protection Ministry, "Israel's Preparations for Climate Change – Report No. 1", April 2021, p. 62.

<sup>42</sup> [First Edition of the Joint WMO – C3S State of the Climate in Europe Report Unveils Impacts of Climate Change](#), Copernicus, October 31, 2022.

In 2022, Egypt, representing the African continent, hosted COP. Among the goals were to examine the realization of decisions made at previous conferences, such as constructing a global mechanism for trading emissions, setting a global goal for adaptation, examining the extent to which the financing goals of the program to confront climate change have been reached, and more. Furthermore, a discussion to debate compensation for climate loss and damage was scheduled.

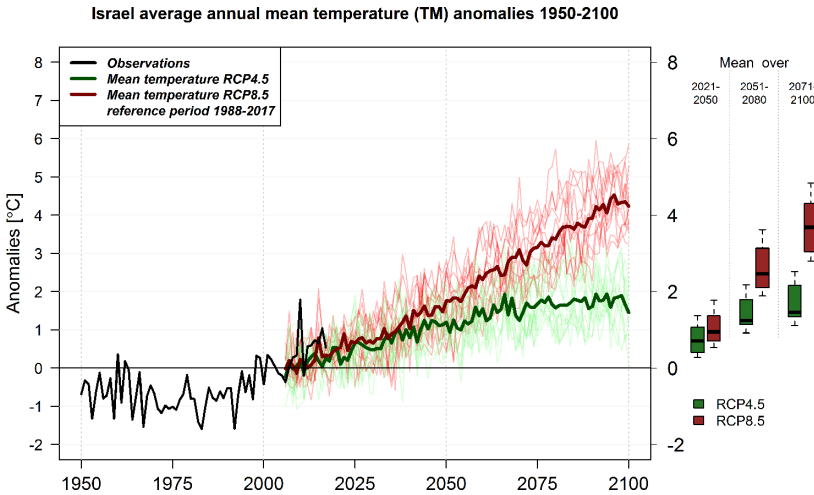


Figure 6: Average annual temperatures in Israel, 1950–2100 (source: [Israel Meteorological Service report](#))

Because of the change in government, Yair Lapid, Israel's prime minister at the time of the conference, cancelled his participation, and Israel was instead represented by President Isaac Herzog. Israel had a pavilion where it showcased Israeli climate innovation, a topic meant to highlight Israel's capabilities in contributing practical technological solutions to the climate crisis. The fact that COP was held in Egypt made it possible for Israel to forge closer relations with regional nations (including nations with no diplomatic relations with Israel). On November 8, then-Environmental Protection Minister Tamar Zandberg represented Israel at a summit for regional leaders, which included representatives of five nations with which Israel has no diplomatic relations (Lebanon, Saudi Arabia, Kuwait, Iraq, and Qatar), where an agreement for regional cooperation on fighting climate change was reached. Other partners include Cyprus, which generated the idea, Egypt, Jordan, Bahrain, the UAE, Oman, and the Palestinian Authority.<sup>43</sup>

<sup>43</sup> Yuval Bagno, "[Heseg levisrael: Shurat heskemim b've'idat ha'aklim bemitsrayim](#)" (Hebrew), ["Israeli achievement: Several agreements at climate conference in Egypt"], *Ma'ariv Online*, November 9, 2022.



Our insights on the topic are that climate change must be seen as a threat to Israel's national security and that the Israeli government must articulate clear and realistic objectives to reduce emissions and support these objectives with an action plan with a clear budget and clear goals. Given the fact that exact predictions on developing change are limited, it was already decided to establish a national computation center as described above for performing and analyzing climate simulations and adaptations. The program that the Climate Authority has prepared is only partial and limited in scope and fails to address the effects of climate change on the maritime domain of Israel as a whole. We must expand our understanding of the connections between climate changes and effects, on the one hand, and maritime security, on the other, study the interrelations between them, and translate the findings of that research into policy papers.

Onshore infrastructures: The Climate Authority made recommendations to the Israeli government on key issues that call for the formulation of suitable policies. The security establishment and the Israeli Navy should, together with the Climate Authority, which was given responsibility for the issue, assume leadership of the field and integrate staff work.

Regionally speaking, one of the insights from the Sharm a-Sheikh conference is that the battle against the effects of climate change can serve as a subject for regional cooperation. Even nations that do not yet have diplomatic relations with Israel may be willing to join in the effort. Via such cooperation and the use of confidence-building measures, it is possible to build a relationship of trust and lower hostility. Israel is advised to take advantage of the window of opportunity opened in Sharm a-Sheikh to jumpstart regional cooperation on the climate, including with nations with which Israel still has no diplomatic relations.

## Maritime Education and Academics in Israel

Due to the increase in the importance of the sea for Israel's security and resilience, the Mediterranean Sea Research Center of Israel (MERC I) was established in 2012. The Center is a consortium led by the University of Haifa and composed of seven research universities, one college, and two government research institutes. At the May 12, 2021 meeting of the Planning and Budgeting Committee, committee members discussed the University of Haifa's request to support MERC I. The committee noted the importance of MERC I, both as an advanced infrastructure center well-equipped to study the Mediterranean effectively, and as a body that brings together Israel's premier marine research institutions under the University of Haifa's leadership, which won the call for proposals to establish the center

and has to date invested millions of shekels of its own funds to run and develop it.<sup>44</sup> The Planning and Budgeting Committee decided to approve NIS 1 million annually for the 2021–2022 and 2022–2023 academic years to make the equipment and infrastructure MERCI has already acquired for deep sea research available to Israeli researchers at the consortium's institutions by subsidizing the cost of use. The committee demanded that the consortium member institutions (excluding the University of Haifa) commit themselves to financing their participation in the center in the center's budget starting with the 2021–2022 academic year. Membership dues to be collected may not be less than NIS 300,000 for the 2021–2022 and 2022–2023 academic years; the University of Haifa's participation in the MERCI budget may not be less than NIS 0.5 million. These are very modest sums, in no way commensurate with the recommendation of the Committee of the Israel Academy of Sciences and Humanities headed by Prof. Zvi Ben-Avraham as described above, and certainly not with the launch of a national academic program in the field of maritime science meant to broaden and strengthen the scientific and engineering community working in basic academic research and marine science applications, expand training in marine science to advanced technological fields and extend it to students in the social sciences and humanities, and make the necessary research infrastructure available to researchers at institutions of higher education.

In 2021, the national steering committee for the assessment of the field of marine sciences in Israel of the Israel Academy of Sciences and Humanities headed by Prof. Zvi Ben-Avraham issued a report recommending the establishment of a national program that would meet the growing need for researching the sea and its resources. The steering committee's objective was to map the current situation, assess the strengths, weaknesses, and deficiencies in Israel's marine sciences, and formulate a national academic strategic plan for the marine sciences in Israel. The proposed plan, to span five years, is designed to advance all marine sciences branches in Israel with an estimated budget of NIS 250 million. It is the committee members' opinion that such a plan would position Israel with neighboring and other nations whose investment in marine science and the use of the sea's resources has been steadily growing.<sup>45</sup> The committee recommended launching a national academic maritime sciences program that would include the efforts mentioned above to enhance maritime science in academia and in industry and provide resources to carry out research, developing interfaces between the academe, on the one hand, and

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<sup>44</sup> [Minutes of the Planning and Budgeting Committee Meeting No. 1110 8, Planning and Budgeting Committee support for MERCI in the 2021–2022 and 2022–2023 academic years](#), Document No. 4875, May 12, 2021, p. 4.

<sup>45</sup> [Report of the National Steering Committee Reviewing the State of Marine Sciences in Israel](#), Executive Summary (January 2021): XVII–XXIII.

industry and government ministries, on the other, and encouraging external investments in academic research in the field. A first opportunity here may be allocating some of the budget to be provided by the Innovation, Science, and Technology Ministry to the topic of "the sea as a national resource" for research and development in the academic realm (as noted above). This would improve the scientific-technological level and attract well-qualified academic manpower to work in the field.

Our insight on the topic is that Israel must increase its investment in maritime sciences in its various institutions of higher education. It is necessary to increase the budget from the Council for Higher Education of Israel and the Planning and Budgeting Committee, with one possible source being the Wealth Fund. The University of Haifa must continue to lead the Israeli consortium for the study of the Mediterranean, to expand the independent status of the Charney School of Marine Sciences, and to encourage cooperation with the Technion and Ruppin Academic Center wherever it is possible to establish joint infrastructures on the topic.

### Education and Training of Officers in the Israeli Navy

The University of Haifa prestigious graduate program, "National Security and Maritime Strategy", which has entered its fifth year, is an auxiliary program of the International Relations Department at the University of Haifa's School of Political Science. The importance of the subject and the need to train a cadre of researchers in the field means that it is imperative that the program become independent and strengthen its connection to the Charney School of Marine Sciences within the framework of the independence it was given at the University of Haifa.

At a visit that the commander of the Israeli Navy paid to the Maritime Policy & Strategy Research Center on March 7, 2018, together with senior officials of the Israeli Navy staff, the Israeli Navy commander stated that "The graduate degree in national security and maritime strategy studies for Israeli Navy officers who are graduates of the Israeli Navy's Naval Academy course must be attractive and its target audience must be, among others, Naval Academy graduates. This two-year program will include a research component".<sup>46</sup> Accordingly, the population of Israeli Navy officers in intermediate positions (after commanding a vessel) was marked as one of the target audiences that the program addresses.

Our insight on the topic is that, unfortunately, after four years during which the program has been running and despite the above, the Israeli Navy has yet to formulate a position

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<sup>46</sup> Ro'ee Sasson, visit to University of Haifa (Maritime Policy & Strategic Research Center), Israeli Navy Commander, March 8, 2018.

on how vital the program is for training its officers, in particular the core of the officer cadre in the track of naval officers. Many naval officers who embark on courses of study choose an academic institution close to their homes or a graduate program that is not as demanding. Only one officer who joined the program chose the research option. Senior officers sent to study at the National Security College (where they earn a graduate degree from the University of Haifa) do not expand their knowledge of the maritime field. The Allon Staff and Command College for Israeli Navy students does not include maritime topics. Officers going to study at military institutions abroad (such as the Naval War College or the Canadian Forces College) complete the academic year without any academic credit. There is no doubt that the existing situation undermines the quality of the officers, especially of those reaching senior positions. Because the graduate program is, among other things, designed for naval officers who are Naval Academy graduates, the command of the maritime branch must be more involved in the issue and seek help from the Maritime Policy & Strategy Research Center to place mid-ranking officers in their program to receive the theoretical foundation enabling them to write studies for the branch on topics at the top of the its agenda.

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## Recommendations

This Strategic Evaluation is a policy-oriented document rather than an academic one. We therefore see fit to conclude it with ten recommendations aimed principally at the political echelon, government ministries, and the Israeli Navy. All recommendations focus on the government's maritime policy. The order of the recommendations is not necessarily indicative of their relative importance or urgency.

### 1. Formulating a comprehensive maritime policy for Israel

Once more, no progress has been made over the last year. Other than the eastern Mediterranean, where changes demanding the formulation of a maritime policy are occurring all the time, the maritime domain around Israel – the Mediterranean and the Red Sea – are undergoing essential changes that mandate redefining Israel's interests in the region and including them in the process of formulating Israel's maritime policy and strategy.

### 2. Formulating Israel's foreign policy for the eastern Mediterranean and the Red Sea

Israel must articulate its interests in the eastern Mediterranean and the Red Sea and determine the appropriate policy for promoting those interests. In the Red Sea, the issue is more urgent and related to new and distant threats to Israeli shipping, which have multiplied as a result of Israel's campaign against Iran and the Iranian realization that acting in distant regions gives them an advantage over Israel. Cooperation with the U.S. Fifth Fleet is a positive move, but it has not yet created the appropriate deterrence against organizations Iran controls and militias, such as the IRGC, that use asymmetrical and hybrid methods of warfare in the maritime domain (including attacking merchant ships with drones). Israel must therefore formulate an operational response capable of meeting these threats.

In the Mediterranean, the renewal of security relations with Turkey, the agreement to draw the maritime borderline with Lebanon, and Israel's inclusion in the Eastern Mediterranean Gas Forum are undoubtedly developments that have reduced regional tensions. The process demonstrated once again that the maritime domain allows flexibility and creativity that cannot be found in the air and on the ground. At sea, the possibilities are varied, from natural resources (oil, gas, and water for desalination), through renewable energy, to creating other joint infrastructures. Israel must recognize the sea as a national resource and regulate it with an eye to the coming decades.

### 3. Improving efficiency of Israeli shipping and ports

Given the launch of operations at Haifa Bayport and Ashdod's Southport, it appears that Israel has succeeded in improving the work of the ports with regard to container ships. At this stage, Israel must focus on optimizing how the ports work with respect to general cargo ships and bulk freighters (ships bearing bulk cargo such as grain, coal, or metal ore). Once the privatization of the port in Haifa is completed, it will be necessary to allow the private ports to stabilize their activities and improve port efficiency with regard to all types of cargo ships, including general cargo and bulk freighters. It will also be necessary to decide on the right time for privatizing the Ashdod Port.

Due to changes in Israeli and international shipping, and because Israel has failed to keep its "golden stock" within ZIM or to operate other mechanisms to encourage Israeli shipping (such as imposing an occupancy tax), Israel must undertake a new, comprehensive examination of Israeli policy on shipping, especially in the context of providing supplies by sea in emergencies, and then adopt a new policy on the issue.

Israel's ports and the ships anchored in them are an attractive target for cyber-attacks. Planning a response to the cyber-threat must be reflected in training, building technical countermeasures, and operating defensive measures for the cyberspace of any given vessel at the organization level. Thinking or planning must be integrated into the structure of the traditional fleet.<sup>47</sup>

### 4. Israeli preparation and readiness for civilian emergencies at sea

The tar spill that polluted the shores of Israel in the winter of 2021 exposed the nation's lack of preparedness to deal with a civilian emergency in the maritime domain in all stages, from detection, through containment and damage reduction, to handling the outcome. Israel has no coast guard, the force that in other nations is responsible for dealing with civilian emergencies at sea. Therefore, Israel must designate one institution to be responsible for managing civilian emergencies in Israel's maritime domain. The Israeli Navy has budgets for vessels and manpower and other capabilities, enabling it to draw up a comprehensive maritime situation assessment (even if done to protect Israel's EEZ). The memorandum on a law for handling oil pollution at sea must be approved, along with other means and capabilities to be put at the disposal of the Environmental Protection Ministry. The government also needs to determine that the Israeli Navy, in conjunction with other institutions, will be responsible for formulating a comprehensive

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<sup>47</sup> Peter Dombrowski and Chris C. Demchak, "Cyber War, Cybered Conflict, and The Maritime Domain", *Naval War College Review*, 7, no. 2 (2014): 6.

situation assessment of Israel's maritime domain. It is also important to anchor in law the body responsible for managing a civilian emergency at sea. In the absence of an Israeli coast guard, it seems that responsibility for the issue must be given to the Israeli Navy.

## 5. Developing and using energy resources at sea and protecting the environment

Given the conclusions of the team, headed by the director general of the Energy Ministry, which examined the need to look for more natural gas reserves in the coming decade and the energy market forecast until the year 2045, we recommend that Israel continue to search its maritime domain for additional gas reserves to maximize profits from producing this resource and funneling those profits to the Wealth Fund in accordance with its original purpose.

Due to the global energy crisis, amplified by the past year's war between Russia and Ukraine, the Israeli government and Israeli gas companies must focus the greater part of their efforts on developing a local and regional natural gas market rather than looking for distant export markets. Together with building energy facilities based on alternative energy sources, it is necessary to continue developing Israel's natural gas fields, because it is foreseeable that this resource will be with us for a long time into the future. Furthermore, one large natural gas-based energy station must be built in addition to solar energy stations, to ensure that by 2030 Israel will be able to meet its growing demand for electricity. Israel's continued membership in the Eastern Mediterranean Basin Gas Forum will strengthen Israel's foreign policy. It is also critical to direct the sums that are starting to accumulate in the Wealth Fund to train scientific/technological manpower that can manage the challenges the maritime domain poses to Israel. The Israeli government must also reach an agreement with Cyprus about producing gas from the joint Yishai-Aphrodite field, a natural gas reserve straddling the Israel-Cyprus border that Cyprus is currently developing unilaterally. In addition to all the above, Israel needs to formulate an environmental policy, which will include preparedness for hazardous incidents.

Assuming that Israel intends to develop further reserves, the state must articulate its position about additional rigs. To Israel's detriment, the Karish rig became a pawn between the sides: on the one hand threats, and on the other, the need not to give in to them. Israel needs to formulate a policy on the location for future platforms while examining all relevant considerations. Israel must make it clear to future gas tender recipients that, because the state is responsible for protecting the rigs and is their source of financing, they will have to adapt themselves accordingly.

The maritime domain is unique in that it allows cooperative ventures that shatter old paradigms about enemy nations, as can be seen in the agreement with Lebanon. Despite some assessments that the division of this reservoir is disadvantageous to Israel, the important principle is that there will be future exploration and production, even if indirect, in the shared gas field. Other examples are joint ventures to exploit natural resources in the eastern part of the Mediterranean Basin currently being formulated, such as the joint forum for Cyprus, Greece, Egypt, Israel, and the PA on energy resources and the possibility of joint development, and the rewarming of relations between Israel and Turkey over the past year, stemming primarily from the possibility of working together to export gas to Europe.

## 6. Moving infrastructures from land to sea

Israel is one of the world's most densely populated nations, a trend that is intensifying with each passing year. In June 2012, the Israeli government decided to establish a special team to examine the viability of building artificial islands for infrastructures such as gas production facilities, power stations, desalination plants, airports, and military installations. The topic was even presented to the National Council for Civilian Research and Development and approved as part of prioritizing the sea as a national resource. It is clear that it is necessary to realize this decision.

It is important that the plan to expand Israel's ports by 2048 be formulated together with all the authorities involved to prevent conflicts from arising between port and city infrastructures. (The Haifa Bayport development process, which has made it impossible to expand the airport there, is a case in point.)

Government Decision No. 472 of October 25, 2020, which requires all government entities to complete their preparations for shutting down the petrochemical industrial activity in Haifa Bay within 10 years, is an opportunity to determine which infrastructures should be located on artificial islands at sea and to prepare accordingly.

## 7. Developing Israel's human infrastructure to manage challenges in its maritime domain

Israel must increase its investment in the marine sciences at its institutions of higher education. It is necessary to increase the Planning and Budgeting Committee's budget; one possible source is the Wealth Fund. The University of Haifa should continue to lead the Israel consortium for Mediterranean research, grant the Marine Sciences School at the University of Haifa the status of an independent school, encourage joint ventures with the Technion and Ruppin Academic Center, and, wherever possible, establish shared



infrastructures. The government needs to determine the public resources required for investment in schools and institutions of higher education to build an economic, social, and professional infrastructure that can meet the challenges and opportunities inherent in Israel's maritime domain: producing and developing energy; protecting the ecological system, including industries needed to handle the topic; and establishing an Israeli marine association to serve as a platform for dialogue among the stakeholders.

Given the current manpower crisis in Israel's merchant navy and the emerging global shortage of naval officers, Israel must increase the number of Israeli cadets and officers at the Naval Officers School of Acre and ensure that they are assimilated into shipping companies with a connection to Israel once they complete their studies.

The Israeli Navy needs to formulate its position on an academic training program for mid-level naval officers who leave to study as well as on the content provided to officers who go to study at the Allon Staff and Command College and the National Security College on its behalf.

## 8. Promotion and regulation of maritime law and regulations

Israel must define its borders and its authority at sea, show that its maritime domain cannot be breached with impunity, and that as a country with a shoreline, it possesses naval awareness rather than naval blindness. The 37th government of Israel needs to complete the approval of the "Maritime Regions Law, 2017" in the Knesset. Failure to advance the law may expose the state to claims in legal proceedings required for developing gas fields outside of Israel's territorial water. In addition, Israel must regulate the "Planning and Construction Law, 1965". In its current format, it is not suitable for addressing deep sea activity.

Given the success in the talks with Lebanon as well as the dire situation of Gaza's economy, it should be taken into account that, before long, pressure may be brought to bear on Israel to help develop the Gaza Marine natural gas field. Resolving the Lebanese issue at sea will serve as a model for efforts to resolve the issue in Gaza as well. Israel must examine its stance on the PA's declaration of an economic waters area off the coast of Gaza (Israel, fittingly, has officially expressed its opposition). It must also examine the possibility of allowing development even if Hamas still rules the region.

## 9. Israel as a maritime startup nation

Given the inter-ministerial decision on the maritime domain and the development of a "blue economy" and the program to develop a business community for maritime technologies in Haifa, the state must develop a multiyear strategic plan for establishing

a national maritime innovation center, which would include a physical, scientific, entrepreneurial, economic, structural, and internationally-g geared working plan. The innovation center should be established in the innovation quarter near the port and involve cooperation among academic, economic, engineering, and security sectors and stakeholders. This would certainly represent a step in the right direction. However, it must be accompanied by additional steps, such as realizing the decision by the National Council for Civilian Research and Development to define the sea as a national resource, budgeting the activity approved by the committee appointed by the Minister of Innovation, Science, and Technology, and allocating the resources to execute these activities in Haifa.

## 10. Preparing for the effects of climate change on Israel's maritime domain

Israel needs to act proactively to identify threatening scenarios and plan for them. By virtue of Government Decision No. 4079 of July 29, 2018, the Environmental Protection Ministry established the Climate Change Preparation Authority, which is responsible for inter-ministerial coordination. It is also tasked with for submitting a plan for implementing a national strategy for preparing for climate change. A review of the Authority's first report on geostrategy and the economy indicates that, in the area of geostrategy and economics, the Authority related only to coastal infrastructure. There is widespread agreement among scientists that to achieve the vital expansion of our understanding of the connections between the effects of climate change and threats to maritime security, it is necessary to conduct a study of the interrelationships between climate change and maritime security and translate the research findings into policy guidelines.

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**Alex Grinberg** (Chapter: The Iranian Strategy Following the War in Ukraine), Alex Grinberg is an expert on Iran and Islamist movements. He holds an M.A. in Arabic Language and Literature. He is fluent in Farsi, Arabic, French, English, Russian, and Hebrew. Alex's main research interest is Iranian intellectual history and modern Shi'a thought. He teaches Persian at Ariel University. Alex held several positions in the IDF military intelligence research department (AMAN). He is currently employed as a geopolitical and intelligence analyst in private firms. Alex was born in Moscow and is hence fluent in Russian and vested in Russian affairs. His research interests at Ezri Center for Iran Gulf and States Research focus on Iran's regional strategy, however, they include also broader geopolitical theaters and their interaction with Iran and the Gulf.

**Shlomo Guetta** (Chapter: Egypt and its Exclusive Economic Zone (EEZ) in the Mediterranean), Capt. (Navy) (Ret.) Shlomo Gueta was born in October 1952. From 1971 to 1993, he served in various roles within the Israeli Navy intelligence command. Rising through the ranks to Captain (navy) in 1990, his last active role was the position of naval intelligence head of research. During his military service, Shlomo completed a bachelor's degree with honors at Tel Aviv University, majoring in extended studies of the history of the Middle East, along with a minor in general history and statistics. In parallel, he graduated the National Senior-Level Intelligence Course. Upon retiring from active duty in 1993, Shlomo participated in executive management business administration course ("T.L.M.") at Tel Aviv University graduate school of business. From 1994–2019, he continued to serve as a senior naval officer (res.) and was charged with composing and analyzing intelligence research projects on various subjects. Already as civilian, Shlomo's experience in management heightened between 1993 and 2014 during which he held several senior management roles at the Raanana Municipality: starting with the position of head of the environmental department, head of the administrative steering committee (which led to the establishment of a residential neighborhood), head of the engineering and infrastructure department, VP for strategic planning and finally chairman of the city of Raanana water corporation.

**Ayal Hayut-man** (Editor of Chapter: The Naval Campaign in the Russia-Ukraine War: A Roundtable Discussion), is a Research Assistant at the Maritime Policy & Strategy Research Center, University of Haifa and a PhD student in Jewish Philosophy at Tel Aviv University. From 2010-2015 he served as Assistant Director of External Relations at the Israel Atomic Energy Commission.

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The Maritime Policy & Strategy Research Center is engaged in research on maritime strategy as part of the University of Haifa's effort to lead the Israeli national research in the maritime domain. The Center conducts academic research in the areas of regional security and foreign policy, the movement of goods, people and ideas, law, energy, and the environment – all while examining their impact on the national security of the State of Israel.

The Maritime Strategic Evaluation for Israel, 2022/23 reviews the main changes in the maritime domain in 2022 and discusses global strategic issues, maritime issues in the Middle East, economic aspects, hazards in the maritime domain, and maritime law and good order at sea. In addition, it includes recommendations for policy and course of action for decision-makers in the grand maritime domain, which would strengthen Israel's resilience and security, improve its economic standing and its citizens' wellbeing - all while preserving the ecosystem of the maritime domain and the heritage assets in it.

The report was written by researcher fellows of the Maritime Policy & Strategy Research Center at the University of Haifa, and other researches who have a unique knowledge of these subjects.

