

# MARITIME STRATEGIC EVALUATION FOR ISRAEL 2021/22

Chief Editor: Prof. Shaul Chorev

Editor: Dr. Ziv Rubinovitz



Maritime Policy & Strategy Research Centre  
המרכז לחקר מדיניות ואסטרטגיה ימית



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April 2022

### *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): The Ever Given container ship blocking the Suez Canal; Exercise of Chinese and Russian battle ships crossing a mined area (Xinhua); Haifa Port (Haifa Port Spokesperson); Oil tanker on fire in the Gulf of Oman (Reuters).

## 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 (5) and 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 Persian Gulf Studies 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

*Editor's note: The book was originally published in Hebrew in January 2022. Dramatic events that occurred since then, like the outbreak of the Russia-Ukraine war in late February 2022, which already has considerable impact on the international system and on the maritime domain, are not discussed in this book. The articles reflect the situation at the end of 2021.*

In 2021, the international system continued experiencing change, which has significant implications for the maritime arena. The passing year was marked with a global effort to overcome the COVID-19 pandemic and the economic recession that it caused around the world, and return to normalcy, as much as the vaccines allow and as long as new variants do not force lock-downs. The year started with the transition of power in Washington, DC, which changed the US foreign and defense policies from the previous administration. This had substantial effect on the international system.

2021 was an eventful year in the maritime domain, in our region and around the world. This emphasizes the need for a systemic, orderly, and interdisciplinary thinking in maritime context. The rich collection of articles in this book presents a variety of topics – strategic in the global level, strategic in the regional level of the Middle East, economic, ecological, legal, and administrative. There are articles that deal with Israel while others examine other countries with little connection to Israel.

This year's Maritime Strategic Evaluation for Israel includes 22 articles, as well as this summary and the conclusion and recommendations. Following are the key points from the articles and recommendations.

### *Section 1: The Maritime Domain – Strategic Aspects*

**Global developments:** Shaul Chorev surveys the key developments in the global maritime domain in 2021, the second year of coping with COVID-19 alongside a relative recovery of global trade.

In the international arena, the shift in the balance of power continues, from the US-led unipolarity that characterized the 1990s and early 2000s to bipolarity with China or multipolarity with China and Russia. China continues to gain power, forming into a superpower. It holds and keeps territory it views as its own, particularly in the South China Sea, and is building an army and navy that could challenge the international order and stability and undermine common norms. Thinking into the future, how would China use its military, when in present day it is already acting aggressively in the South China Sea and vis-à-vis Taiwan? However, China is not the

only country to challenge the United States. Russia is also active, particularly in post-Soviet countries. Recently, the tensions with Ukraine increased, and the United States threatened Russia not to use force against Ukraine. As soon as March 2021, the new administration in Washington hastily issued an interim national security strategy document, while it is working on a formal document that would be issued, as became traditional, later during President Joe Biden's term. The interim document identifies China as the main adversary of the United States, but also aims to recover the United States itself, socially and economically.

Repairing the United States' relations with its traditional allies is a critical task for the Biden administration, particularly with Europe after President Donald Trump's term that undermined the transatlantic relations. Russia's recent aggressive actions position it as Europe's main adversary. This makes the repairing of the US-Europe relations much more likely and much faster than previously assumed. Russia is not only active in Europe but also in the Middle East, specifically being involved in Syria and Libya. This increases its influence and undermines the US influence.

Cooperation between the United States, Australia, Japan, and India has grown because of their joint concern with China. The United States, the United Kingdom, and Australia have formed a tripartite alliance (AUKUS) which will provide Australia technologies to build nuclear submarines of US and UK production instead of France.

The hasty withdrawal of the United States from Afghanistan and the Taliban's taking over of the country even before the last US troops left sheds negative light on US power; therefore, it is losing much of its status as a credible ally. The credibility of the US commitment to Taiwan will likely be tested in the near future given China's threats and recent actions near Taiwan.

The UN Climate Report (IPCC) that was published in August 2021 is important because it no longer allows us to deny the seriousness of the climate situation. Following its publication, it is clearer what needs to be done to prevent the crisis, and how to prepare to cope with its consequences, but we are struggling to understand how to do this at the correct pace.

In the cyber domain, the main concern in the west is of a widespread attack on a country's infrastructure, mostly by Russia, China, Iran, and North Korea. The concern with cyber attacks, whose cost could be extremely high (about \$600 billion per-year, roughly 0.8% of the global GDP) will require allocating more resources for defense against such attacks. The cyber threat to the shipping and ports sector is greater, particularly in the COVID-19 era, because ships are required to be connected to



the internet for communication for longer periods of time, exposing them to cyber attacks more than previously. This is happening while a large part of the electronic equipment on ships is out-of-date and not shielded from attacks.

The waves of refugees around the world, particularly from Africa and the Middle East to Europe, were slowed down significantly in 2021, much due to the restrictions on travel related to COVID-19. Yet, refugees use maritime paths to reach safe havens, and many perish on the way.

**Regional developments:** Dissatisfaction and social-economic complaints in the Middle East will continue feeding unrest, violence, and instability, especially given the dire economic situation due to the COVID-19 pandemic. Some Middle Eastern countries are expected to become failed states which might bring about their economic collapse. Iran is expected to continue projecting power through its military forces, and its willingness to strike against US interests would heavily depend on its assessment whether such strikes would endanger the easing of sanctions, would the United States retaliate, and would it ignite a direct confrontation, of which Iran seems flinched. The new government in Tehran, led by President Ebrahim Raisi, is likely to continue implementing the strategy of brinkmanship in the negotiations on a new nuclear deal. Iran will continue intervening in Lebanon, strengthening Hizballah, and would attempt to foil Lebanon's appeal for Western aid by civilian means like the supply of fuel. Iran will also continue aiding the Houthis who are targeting US and Saudi interests, and would continue threatening Israel, directly and indirectly.

The United States' strategy in the Eastern Mediterranean remains ambiguous. There is yet a coherent strategy toward Turkey, Libya, or Syria. In contrast, Russia aspired to increase the dependence on its gas, to nurture favorable political elites, and to prevent NATO and the European Union from expanding eastward.

At the end of 2020, Turkey had somewhat moderated its years-long dispute with Greece and Cyprus, probably hoping to diminish the support for the latter by the EU, Israel, and Egypt. President Recep Tayyip Erdogan changed his tone toward Israel, and Ankara stated that through Turkey, Israel's natural gas would be traded effectively in other markets. Erdogan's phone conversation with Israel's President Isaac Herzog upon his inauguration in July 2021 matches this trend. The presidents agreed that there is a basis for cooperation, particularly on energy, tourism, and technology. The softening of Turkey's positions toward the west doesn't necessarily indicate any softening toward Greece or Cyprus. It appears that Erdogan is keeping all options open and is assessing from where he could obtain better strategic and political achievements.

The Red Sea region turned into one political and security-wise region, in which the great powers and the regional countries have significant interests, particularly relating to free trade and navigation between Bab el-Mandeb and the Suez Canal. The blockade of the Canal in March 2021 for six days demonstrated the importance of the Red Sea for international trade. There is also a superpower competition for influence in the Red Sea that makes it ever more important to all nations that reside on its shores, including Israel.

Terrorist activities diminished during 2021 thanks to the COVID-19 related restrictions on movement. In our region, the naval branch of the Revolutionary Guard conducted terrorist attacks against ships owned by Israelis or otherwise associated with Israel, although they neither raise an Israeli flag nor are registered in Israel.

Chorev's article also surveys developments during 2021 in **the most important navies in the world** and in the Middle East.

The US Navy is still the most powerful in the world, however it faces growing challenges, particularly from China. The US Department of the Navy's budget for 2022 is \$211.7 billion, an increase of 1.8% from 2021, however the procurement budget was cut by \$2.7 billion. The Department defines the measure of the Navy's strength as "our ability to control the seas and to project power." The budget allows the deployment of 296 ships, including 11 aircraft carriers and 31 amphibious vessels. In 2022, the Navy will receive 17 new ships and will decommission 14. In fact, the Navy is investing in maintenance of ship and aircraft on the expense of procurement and force building. Since President Barack Obama announced the Pivot to East Asia, the Navy's activity in the Mediterranean was significantly reduced. In August 2021, only one vessel of the Sixth Fleet was active. The Biden administration had not yet formulated a strategy for the Mediterranean Sea. Under Biden, the US-Turkey relations might be shaken, but the United States and Turkey have many shared interests, such as the Russian and Chinese challenges that justify increasing cooperation.

China: China's maritime interests are growing; thus, its navy is growing as well as its exercises. A report submitted to the US Congress argues that quantitatively, the Chinese navy is larger than the US Navy, but qualitatively, it is inferior to it. However, the Chinese navy is improving constantly and is closing the gaps quickly. According to the report, China plans to implement the Anti Access, Area Denial (A2/AD) strategy to deter the United States from intervening in case that hostilities break out in the South China Sea.

Nevertheless, despite its strengthening, it seems that the Chinese navy is limited in several aspects: anti-submarine warfare, long-range attacks, the capability to train a large number of crewmen for the new ships, command cohesion, and lack of combat experience. However, China developed land-based ballistic missiles capable of hitting vessels. It also has submarines, most of which are non-nuclear driven, and two aircraft carriers, but for a possible attack on Taiwan, the latter would not be needed, as China could strike from its land bases.

China's investment and involvement in the Middle East is growing. It has a naval base in Djibouti, is strengthening its ties with Iran, and trades with regional powers. Experts in the United States believe that the Middle East will become competitive between the superpowers. China is the largest consumer of oil from the region, and as the use of oil around the world decreases, China's importance for oil exporters in the region will only grow.

In September 2021, after 15 years of planning and construction and an investment of \$5.5 billion in infrastructure and operating equipment, the "bayport" (Namal HaMifratz) was inaugurated in the Haifa Bay, run by the Chinese company SIPG. The US government expressed its concern over the construction of essential infrastructure in Israel by Chinese companies. In May 2020, then Secretary of State Mike Pompeo visited in Israel and warned then Prime Minister Benjamin Netanyahu against the win by the Chinese Hutchison Company of a tender for the construction of the Sorek 2 desalination plant. The concession was eventually awarded to a consortium of the IDE desalination company and Bank Leumi.

Russia: Despite its dire economic situation, Russia intends to keep its navy's status as one of the most powerful in the world. The Russian navy increased its activity in the Arctic area, expanded its presence in Africa and the Middle East, and continued challenging NATO in Europe. Russia continues to replace large ships with smaller ships like corvettes and frigates. Its new cruise missiles compensate for the Russian ships' inferior size and armament compared to NATO's navies. The new Russian missiles can hit targets across Europe and the Middle East.

Russia is prioritizing the navy in recent years following the deteriorating relations with the west following the annexation of Crimea in 2014. It aspires to be present everywhere the Soviet navy was present during the Cold War. In the Mediterranean, Russia's navy is deployed permanently and uses the Port of Tartus in Syria.

The Russian strategy in the Mediterranean Sea is part of its strategy in the European theatre, which Russia considers to be the most important. Russia considers the West

as the largest threat to its domestic political order. The Russian naval presence in the Mediterranean is intended to protect Russia's achievements in Syria as well as Russia itself against NATO's naval and air threats. It is possible that in the future, Russia would like to dominate the Mediterranean Sea, but at this time, it suffices with preventing NATO's operations, and to some extent, it replaces the United States and NATO as a mediator and powerful actor in the region. Part of the Russian strategy in the Mediterranean is driven by the need to gain a foothold in countries with new energy related development. In Egypt, Russia purchased 30% of the shares of the Zohar gas field from an Italian company, and in Libya, it is taking a major gamble for the possibility of acquiring concessions. In the Red Sea, the Trump administration pressured Sudan not to sign off on rights of anchorage for Russian warships in Port Sudan. At this time, a Russian proposal to construct a Russian naval base in Port Sudan is postponed.

India: The role of India's navy is to protect India's natural wealth, to keep its trade routes open, and to maintain its international status. This requires having a large and powerful navy, which will always be on alert to defend against a security threat or respond to a natural disaster. The Indian navy is one of the largest in the world. China's navy is its point of reference, which is why India plans to procure vessels like submarines (nuclear and conventionally driven). Yet, the navy's budget has decreased in recent years, with an exceptional increase of 22% in 2021.

Turkey: Turkey is engaged in several conflicts in the maritime domain. In summer 2020, the Turkish and French navies confronted one another in the Eastern Mediterranean. The dispute with Greece on the demarcation of their maritime border could turn into hostilities, similar to the dispute over Cyprus's EEZ. It appears that all these conflicts originate in Turkey's Blue Homeland idea. Its basis is a Turkish demand to increase its territorial waters significantly. The navy is prioritized by the government and it seems to be on the path to become a great power navy, similar to the United Kingdom and France.

Egypt: Egypt wants to be the most powerful naval power in the Eastern Mediterranean and Red Sea. In the Global Firepower Index for 2021, the Egyptian navy was ranked seventh in the world, however, it seems that this disregards several elements like the quality of the combat systems. In any case, Egypt is investing considerably in its navy in recent years based on its understanding of the navy's importance given the future challenges.

Egypt is procuring ships of different types but also constructs its own. The Egyptian navy is divided between the northern fleet that deals with the Mediterranean and

the southern fleet that deals with the Red Sea and the Suez Canal. The northern fleet protects the gas fields and Egypt's economic interests and also controls the flow of refugees to Europe in its area of responsibility. The southern fleet deters threats that emerge from the Yemen civil war and the Horn of Africa, and particularly operates against blockades on maritime routes.

Iran: Iran's strategy in the Persian Gulf and the Gulf of Oman is Anti Access, Area Denial by its rivals to areas that Iran views as vital to its sovereignty and defense. It operates directly and indirectly through its proxies like the Houthis. Iran has two naval forces, one belongs to the military and the other to the Revolutionary Guard. Their assignments are different, as are their training and combat tactics. The Revolutionary Guard has smaller and faster vessels, which makes it similar to a naval guerilla force. The military's navy aspires to operate in the oceans, and two of its ships navigated around Africa into the Atlantic in 2021, eventually reaching St. Petersburg for Russia's Navy Day.

Iran and Israel are engaged in a "shadow war" which became quite public in 2021 with mutual strikes. In April 2021, the Saviz, an Iranian ship anchored across Yemen's coast was hit, allegedly by an Israeli force. It is considered a base of the Revolutionary Guard. In July 2021, the Mercer Street, which is operated by an Israeli company, was hit in the Gulf of Oman.

Benni Ben Ari's article, "Strategies in the Indo-Pacific", surveys the strategic setting of the Indo-Pacific, which has become in recent years the most important maritime route in the world from the economic and military perspectives. Given the conflict of interests of the great powers in this region and the powers of the major countries in this region, there is great concern over a possible outbreak of hostilities. The United States, India, Japan, and Australia, as well as many other countries, view China's growing power in the region as the major threat to their interests, which leads them to cooperate at various levels against China's rise. They are trying to enforce rules of behavior that will secure the existing world order out of concern that China might undermine it.

"Russia and the Indian Ocean": Tzevy Mirkin argues that the Indian Ocean always ranked low on Russia's agenda. During the Soviet era, the Indian Ocean was certainly insignificant until the 1960s, but since the 1990s, after the Soviet Union disintegrated, the Russian navy ceased operations in the Indian Ocean. Under President Vladimir Putin Russia resumes operations in this theatre, including in the international effort against piracy. In the recent decade, Russia's activity in the Indian Ocean grew, however in official documents it does not receive much attention. It appears that

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Russia is mostly showing its flag. The Russian navy's activity can also be interpreted as an attempt to show itself as an independent branch after many years that it was considered a secondary player among Russia's military branches.

"The US 'Pivot' to East Asia: Potential Implications for the East Mediterranean If It Were Implemented": Ziv Rubinovitz discusses the US Pivot to East Asia that was announced a decade ago to deal with China's rise. The Pivot was not fully implemented and it is doubtful that it could be implemented in full because the vacuum would be filled by Russia, China, and Iran – all rivals of the United States, with Iran also being a rival of the US allies in the region. This is why Washington's allies in the Middle East do not want it to withdraw but have to think of their future alliances due to the possibility that the United States would redeploy its forces around China after all. A massive rearmament of its allies could at least partly resolve Washington's dilemma, which could become harder in the near future. The rapprochement between some of these allies in recent years is part of their preparation for the uncertain strategic future.

### *Section 2: The Maritime Domain – the regions close to Israel*

"The Development of the Iranian Naval Branch": Shlomo Guetta and Motti Elharar analyze the strengthening of both navies of Iran – the Islamic Republic of Iran Navy and the naval force of the Revolutionary Guard, which have different roles. They started cooperating in recent years. The strengthening of the navies reflects Iran's rising to a regional power. Iran demonstrates its presence in the Persian Gulf, the Arab Sea, and the Eastern Mediterranean, and even conducted its first voyage through the Atlantic Ocean. The Iranian naval branch allows it to act against Israel and to obtain additional interests of Iran in the maritime domain, including bypassing the sanctions regime. The authors argue that the considerable rise in armament and naval activities is related to Iran's sense of threat, especially after the United States withdrew from the JCPOA in 2018. They assess that the naval arena is at the center of Iran's strategy, therefore it is reasonable that it will continue strengthening its naval forces.

Israel-Turkey: In the recent decade, Israel and Turkey were usually at loggerheads, however, recently Turkey is signaling to Israel its interest in resuming their dialog, for instance through the phone call between presidents Erdogan and Herzog after the latter took office as Israel's president. In his article, Omri Eilat focuses on the potential and real points of confrontation between the countries, such as the territorial waters of Cyprus and Turkey's territorial waters vis-à-vis Greece and Cyprus. The article argues that Israel's opening to the sea in the recent decade adds challenges

and dilemmas to the Israeli-Turkish relations, but also new opportunities. Since 2019 Turkey claims sovereignty over a large portion of the Mediterranean Sea, some of which is recognized as Greek or Cypriot according to international conventions. The change in power in the United States altered the patterns of thought in the Middle East. Turkey is attempting to get closer to the Biden administration, including by their attempt to get closer to Israel, the UAE, Egypt, and Saudi Arabia. Israel and Turkey have many shared economic interests in the Mediterranean, which can serve as a basis for improving relations, alongside similar security threats like Iran's basing in Syria and Lebanon.

Changes and transformations in the Red Sea Basin: Moshe Terdiman discusses events in recent years around the Red Sea that impact geostrategic affairs in the sea and on its shores, including the war in Ethiopia, on the one hand, and the various developments in the Arabian Peninsula (the rapprochement between the Gulf states and Saudi Arabia, and the war in Yemen) on the other hand. Israel's interests in the Red Sea are to prevent the blockade of the Bab el-Mandeb Strait and to prevent Iranian oil and arms from reaching the Houthis, Hizballah, and Syria. The regional uncertainty and volatility make it imperative for Israel to follow closely the changes in the region while remaining aloof from the conflicts. Israel must also avoid getting embroiled in the great powers complicated interests in the region.

"Maritime Security in the Gulf of Aden and Red Sea": Stephen Blackwell from the Trends Research and Advisory think tank in Abu Dhabi discusses the cooperation of the GCC members with the countries residing along the Red Sea and the Gulf of Aden against piracy and in strengthening maritime security while the war in Yemen is ongoing. Maritime security in the region is becoming more important because of the need to secure the safety of ships in Bab el-Mandeb on their way to the Suez Canal. One of the examples of regional cooperation the author mentions is the establishment of the Red Sea Forum, which can mediate in conflicts and deal with long-term threats. However, there are disagreements among member states, for instance when Egypt demands that only countries that reside on the Red Sea would participate, a measure that would secure Egypt's senior status in the Forum. There is a potential for fruitful cooperation in the region for everyone's benefit and for the termination of the wars in the region.

"Military Innovation on the Part of the Political Echelon – the Dolphin Submarines": In this article, Itsik Bilia argues that in the relations between the political and military echelons, the political one initiates military innovation, both technological and strategic, while the military is many times fixed on obsolete concepts. The article focuses on describing the events that brought Germany to promise Israel to

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supply two Dolphin submarines during the 1991 Gulf War. Defense Minister Moshe Arens pushed for obtaining German submarines despite the military's preference for other procurements. A similar process happened with the Iron Dome system, when Defense Minister Amir Peretz forced his decision to develop this project on the military which objected.

### *Section 3: The Maritime Domain – Economic Aspects*

"The Incident of the Suez Canal blockage by the *Ever Given* Container Ship": Ehud Gonen discusses the incident in March 2021 when the *Ever Given* blocked the Suez Canal and its cost for shipping and maritime trade. The incident was a reminder of the importance of the Suez Canal for global trade and how vulnerable the transit through it actually is. A blockade of the Suez Canal had dire economic consequences for Egypt, for which the Canal is a significant source of income (roughly 10% of the government's revenue). The Canal is important also to Egypt's neighbors, including Israel, for which the Suez Canal is a critical waterway and its blockage can result in long delays of their trade. The article examines alternatives to the Suez Canal and how worthwhile they might be; however, most of them are inapplicable due to economic and political reasons.

"Exclusive Economic Zones (EEZ) in the Red Sea Region": Shlomo Guetta analyzes the Exclusive Economic Zones of the countries residing along the Red Sea. He argues that the production of energy from the Red Sea would change the definition of the Red Sea basin and its importance would grow. However, while the Red Sea could bring economic prosperity to these countries – particularly Egypt and Saudi Arabia – it could also cause conflicts. Freedom of navigation in the Red Sea is imperiled by the civil war in Yemen and Iran's activity to aid the Houthis. While Israel is not a major player in the Red Sea, its interest in maintaining freedom of navigation is obvious. Israel should aspire to have its status in the Red Sea recognized, and the Red Sea Forum alongside the Abraham Accords could do just that.

"Solar Hopes and Grounded Reality": Elai Rettig's article asks if Israel can meet its own commitments to transition to clean energy and whether it is advisable. In the coming decade, the Israeli market will become more dependent on natural gas due to geographical and technological difficulties to meet the goal of producing 30% of Israel's energy from renewable sources. Israel should invest in reducing air pollution as a result of the use of coal power plants and the large number of vehicles. It should also prepare for weather-related damage that originates in climate change. The article warns against setting unrealistic targets about renewable energy that would be the basis for increasing the export of natural gas. If the goals are not met,



Israel might find itself without enough gas for its own needs, which would result in dependence on expensive imports.

"The Chevron Corporation and the State of Israel": In late 2020, the Chevron Corporation bought Nobel Energy and thus entered the Israeli market. Glen Segell discusses the difficulties Chevron and Israel went through in 2021 and their need to cooperate for mutual economic benefits. The article also discusses Chevron's place in the discussions on the EastMed pipeline that is planned to be laid in the Mediterranean to connect Israel's gas fields to Europe through Greece, and points out that it is important to discuss this with Turkey which views the pipeline as an economic threat. Chevron can lay the pipeline for future profits. By finding the gas fields, Israel benefited the strengthening of its Navy with new ships which provide it with new capabilities to project power.

#### *Section 4: Dangers in the Maritime Domain*

"Hazards of Transport of dangerous goods in Ships": Alex Gerson analyzes the hazards in transporting dangerous goods in ships. The desire of ship owners and operators to increase the number of containers with dangerous goods is obvious, but it is important to remember that dangerous goods require special skills and training to deal with problems, if they occur, before and during the voyage. The increase in the amount of dangerous good on cargo ships raises the stakes for a disaster at sea or near population centers. International conventions and transport rules of the International Maritime Organization define how to treat such substances but the rules need to be enforced. Because of its location and the volume of maritime transport in its vicinity, Israel must prepare for disasters caused by dangerous goods at sea and for regional and local maritime pollution in partnership with its neighbors.

"Black Carbon Emissions from Ships in Israeli Ports": Merav Gonen discusses environmental dangers of air pollution originated in ships, particularly black carbon emission into the air – particularly at ports and in port cities that are exposed to severe air pollution. Black carbon is second only to carbon dioxide in its impact on global warming, and cruise ships and cargo ships emit it in levels disproportional to their portion of the shipping industry. Polluting emission is most severe during a ship's time at the port. The article suggests several solutions to reduce carbon emission from ships, such as replacing their fuel and improving its usage, or connected ships to electricity at the port instead of forcing them to operate their engines while Hoteling.

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### *Section 5: Maritime law, good order at sea*

"The State of Israel and the Convention on the Law of the Sea – the Current State": Benny Spanier discusses Israel's status in maritime law due to the fact that it never joined UNCLOS (1982), and examines the reasons for its refusal to sign it in 1982 compared to the situation today. In 1982, five reasons were given: The PLO's status in UNCLOS and the concern that Israel would appear to recognize the PLO by signing the Convention, the narrowing of navigation rights through the Tiran Strait (compared with the Israel-Egypt peace treaty that defined passage through Tiran as freedom of navigation), the limits on the ability to board ships for search on high seas, the requirement of arbitration in case of disputes, and the fact that the United States also did not sign. Although Israel did not sign it, it accepts UNCLOS as customary law, thus it enjoys all of its rights. This raises the question should Israel sign after all. Apparently, nowadays the arbitration issue is the main cause for Israel to not sign, but there is a debate between the concern that Israel could be dragged into arbitration and the possibility that by signing, Israel will have a normative leverage over its neighbors in attempting to settle their maritime disputes.

"UNCLOS, Delimitation of Maritime Boundaries and Offshore Infrastructure as a Means for Regional Cooperation and Reconstruction of the Gaza Strip": Orin Shefler deals with possibilities to settle the maritime border between Israel and the Gaza Strip as part of the settlement of the Israeli-Palestinian conflict. The classic security concepts place the Palestinians at an inferior position, but the sea is an arena where they have a good chance to obtain significant political and economic gains. Cooperation at sea can serve all parties' interests. The article distinguishes between two approaches to settlement of control at sea: the classical approach examines governance and military, security and political control, while the modern approach also touches on economic issues and division of natural resources according to UNCLOS. The Maritime Areas Law that is being discussed by the Knesset in recent years combines the two approaches. Israel wants recognized maritime borders and thinks more about managing its rights at sea than about military control over the sea, which the author argues had been accomplished.

"A Model for an Israeli Academic Maritime Monitoring System": Semion Polinov and Shaul Chorev discuss sensors for tracking objects at sea for inspection, security, and preventing of pollution. The article calls for an open-access database. The size of Israel's EEZ is larger than Israel's pre-1967 size. The EEZ includes energy resources, Israel produces most of its drinking water from desalination, and there are also natural resources. Nearly all of Israel's trade is done by sea, and the sea can also be

used for future urban development. The article presents the various capabilities of the existing satellites to fulfill the needs of the monitoring system.

"Estimate of the Cost of Protecting the Sea Ports in Israel Against Cyber Threats": The maritime chain of supply is vulnerable to cyber attacks whose economic damage could be very high. Itai Sela discusses the question of securing the computer systems of Israel's ports. The systems are old and include neither security updates nor cyber security. Moreover, there are no mandatory recommendations in this field and the system depends on the human factor to respond to cyber attacks. The cost of a cyber attack on an Israeli port is estimated around \$1.7 billion, while the annual cost of cyber defense is around \$3.5 million. Investing in cyber defense is worthwhile from an economic perspective. It is important to shift cyber defense from the human factor to computer systems.

"Government Subsidies for the Maritime Sector Around the World": Ofir Kafri examines the various subsidies that countries provide for their maritime sector. These subsidies refer to infrastructure, research and development, air pollution, manpower, energy, and shipping, and they allow the maritime sector to be globally competitive, prevent pollution, and maintain a fleet for emergencies. The subsidies come in different forms, such as tax breaks, easing of payments, and extending credit under favorable terms. Some subsidies fail in fulfilling their purpose and some even cause harm, for instance when they create market distortions. It is important to analyze the planned subsidy and to provide it in a manner that promotes the national interest. A subsidy should deal with a specific issue in a focused manner. A subsidy that provides a universal benefit can fail of cause harm.

"Financial and Other Benefits Through Using Flag of Convenience in the World": Ofir Kafri maps the field of flags of convenience. Some countries are leaders in the fields and provide a variety of benefits to ship registration with them. These include tax reliefs (many times suspected of being tax havens), lenient conditions while registering, and few limitations on issues like the vessel's age, its type, or its tonnage. There are countries that want to have ships register with them again, and the article discusses the methods they use, such as subsidies, lenient registration rules, a second registration, regulatory changes, improved services, and so on. Such actions require investments that sometimes are not worth their cost. Thus, a country like Israel should consider whether to act at all. Goals should be set with appropriate measures. The action should match the characteristics of the vessels the country wishes to register, and registration should be avoided if registering the vessel would be unhelpful, for instance if the vessel is old or polluting.

"Reform in the Ports of Israel – Vision and Reality": Arie Gavish examines how successful was the reform in the ports, which started more than 15 years ago with the replacement of the Ports Authority with the Israel Ports Company. The article surveys the regulatory and functionality status of the Israeli ports, including the two new terminals – the "Bayport" (in Haifa) and the "South Port" (in Ashdod) – and argues that the reform was unsuccessful because it did not resolve many of the problems at the ports. The malfunction of the ports in the past, including occasional strikes, a long waiting time outside the ports for treatment, and slow treatment of cargo, was improved only marginally, if at all. Some elements of the reform would take many more years to evaluate properly. The Israel Ports Company created a market failure and has conflicting interests. The reform was needed because of serious problems in the ports' functioning and labor relations, but it appears to be insufficient. Therefore, Gavish recommends to replace the Israel Ports Company with a new body.

In the Conclusion, Shaul Chorev offers several insights that are summarized below:

The geopolitical and geostrategic map of Israel had changed in recent years and a new circle of interests evolved, focusing on the East Mediterranean and the Red Sea. In the past, every region was considered separately, but nowadays it is common to view them as one unit. In this new region there are many energy resources and military and civilian assets. Regional and global players are competing over the region, which led the regional countries to change strategies.

The strategic implications of operations in the maritime domain, such as those attributed to Israel against Iran, should be examined. It is important to consider the broader implications, for instance on Israeli trade and security of Israeli-owned vessels. Acting independently in a region like the south Red Sea or the Arabian Sea is beyond the capabilities of Israel's Navy, therefore it is important to intensify cooperation with friendly navies, particularly the US Fifth Fleet.

The demarcation of the maritime border between Israel and Lebanon should progress through negotiations mediated by the United States. Lebanon significantly expanded its demand, arguably basing its new position on UNCLOS. If it gets its way, Lebanon will have a foot in the Karish gas field. Israel should continue negotiating while also determining its maritime borders.

Concerning its relations with Turkey, Israel must understand that its status had changed following the transition of power in Washington, and that its freedom of

action is more limited than it was under the Trump administration. This is also true for Turkey. Both countries should expand their cooperation.

Israeli shipping is in a bad shape for many years, but before deciding on a new policy to replace the policy that was in effect at the time Zim was privatized, the government should learn the changes that happened in the field in recent years. The Marine Institute for the training of naval officers should maintain the professional knowledge on deck and machine majors, and adapt it to new ships.

The decision to establish in Haifa a national center for innovation in cooperation between the Haifa municipality and the School of Marine Sciences at the University of Haifa is correct, but requires complimentary actions by governmental organs like the Chief Scientist of the ministry of science and the Innovation Authority.

Considering maritime education, the Security and Marine Strategy program should be under the School of Marine Sciences. The Israel Navy should have a clear policy for the training of officers who pursue academic studies so that these officers would attend the Security and Marine Strategy MA program.

Finally, the conclusion includes ten recommendations:

1. Formulating a grand maritime policy and strategy for Israel.
2. Formulating Israel's foreign policy in the Eastern Mediterranean and the Red Sea.
3. Preparation and preparedness for civil emergency events at sea.
4. Preparation for climate change effects on Israel's maritime domain.
5. Development and utilization of energy resources located in the sea and protection of the environment.
6. Promotion and organization of good order at sea.
7. Development of a human infrastructure for coping with the challenges in the maritime domain.
8. Shipping and ports in Israel – the government needs to keep the "golden share" in Zim, publish a policy for the shipping and ports sector, and inspect their defense programs against cyber attacks.
9. Israel as a startup nation in the maritime domain – various governmental bodies should support by action the recommendation to establish a national center for maritime innovation.
10. Moving infrastructure from land to sea.