

MARITIME STRATEGIC EVALUATION FOR ISRAEL 2021/22

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Conclusion of Maritime Strategic Evaluation for Israel 2021/22 and Recommendations for Israeli Policy

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Insights Summary

Geopolitical and geo-economic changes affecting Israel's area of interest in the maritime domain

Many political, security and economic developments have come together to make a significant difference in the geopolitical map of the meeting area of the three continents, Asia, Africa and Europe. This accelerated the emergence of a new strategic circle that forms a meeting of many international and regional interests, at the core of which are the Red Sea region and the eastern Mediterranean, i.e., the two regions traditionally perceived as separate and independent geographical units, have in recent years become increasingly interconnected in terms of international relations along with the geographical connection that already exists through the Suez Canal.

This relationship is supported by a number of indicators: the first is the significant increase in the value of the various assets being contested by international and regional powers, whether with regard to ports, energy resources or the location of naval military bases. The second is the variety of international and regional competitors in the eastern Mediterranean and the Red Sea, and a large number of regional players. The third is the emerging change in the strategies of competing countries in the region resulting from a deeper understanding of the relationship between the Eastern Mediterranean and the Red Sea, and the attempt to use this relationship to improve their presence on the one hand and reduce the presence of competing countries on the other. It seems that three main factors are contributing to the growing importance of the region: Maintaining international freedom of navigation, the significant increase in the region's ability to provide energy resources and the interest of many countries to ensure their military presence in this strategic circle.¹ Israel must monitor emerging changes and formulate a policy in the domains of maritime trade, freedom and security of navigation, and the utilization of maritime domain for the realization of its strategic objectives.

¹ EPC, "The Eastern Mediterranean-Red Sea Region: Stability Pillars and Threats", July 6, 2021.

The main issues discussed below lead to insights that will become recommendations for the political and governmental echelons in Israel concerning the Israeli maritime domain.

Government treatment in Israel on issues related to maritime domain

According to a government resolution dated November 4, 2012, the National Economic Council is tasked with presenting a strategic socio-economic assessment to any new government in Israel within 30 days of its formation. The National Economic Council in the Prime Minister's Office was established in September 2006 in order to meet the need for a professional economic body, with general economic and strategic vision, and with high analytical capabilities, which will act as a staff organ for the Prime Minister. To improve the process of formulating a situation assessment for the 36th government, which began its term in June 2021, it was decided as early as 2018 to promote a process of consulting with experts who will be able to contribute their knowledge and experience to assess the situation. The Maritime Policy & Strategy Research Center has answered a call for proposals regarding the marine component, but to the best of our knowledge nothing has been done on the subject.²

The 36th Government of Israel did not include in its basic guidelines a reference to the maritime domain and its development, although on other issues such as the development of Israel's geographical periphery, the government pledged (Article 7) "To do so and to strengthen the economic conditions that enable integration and civic involvement, including through integration in the employment market".³ In higher education, the government pledged to strengthen higher education, but emphasized the "establishment and budgeting of a university in the Galilee," and not in the context of marine science.⁴

However, it was to be expected that in accordance with a government decision of October 25, 2020, the Inter-Ministerial Committee of Directors established for the Development and Promotion of Haifa Bay would submit in its conclusions certain recommendations corresponding to the government decision of June 7, 2012 approving the establishment of a steering committee for the examination of technological feasibility for building artificial islands in Israel for infrastructure

² Ella Weinreb Yaniv, "Moving away from the target: the National Economic Council is looking for a leader". *Globes*, July 2, 2021 [Hebrew].

³ "Guidelines for the Establishment of a Unity Government during the 24th Knesset Term", *Knesset Website*, Guidelines and Coalition Agreements, Article 7 [Hebrew].

⁴ *Ibid*, Article 20.

purposes. The committee formulated a recommendation document summarizing its work and recommended "setting a government goal that within a decade the preparation of all government bodies will be completed so that the activity of the petrochemical industry in Haifa Bay will cease."⁵ Unfortunately, none of the alternatives is exploring the possibility of evacuating some of these infrastructures and placing them on artificial islands, a topic that has been examined many times by The Maritime Policy & Strategy Research Center in recent years.

The regulation of government policy in Israel's maritime domain – the plan of former Finance Minister Moshe Kahlon to establish the "Marine Authority" did not materialize and after he left office, the Planning Administration returned to being an auxiliary unit of the Ministry of Interior. The policy document for Israel's maritime domain in the Mediterranean, which was distributed in December 2018 by the Planning Administration, was not approved by the Israeli government. At this stage, a team of inter-ministerial general directors has been established to handle the recommendations and turn them into a plan.

Our insight on this issue is that the correct order is to start formulating a maritime policy and strategy for Israel's maritime domain, and only after the maritime policy, objectives and strategy are approved by the government will the Maritime Spatial Planning be approved.

Development and protection of Israel's gas resources

In 2021, regular gas supply from the Leviathan Field began, and in the second half of 2022, supply from the Karish Field will also begin. Contrary to forecasts, in the fall of 2021, world natural gas prices soared. It should be kept in mind that this is an energy market that has no safety margin (i.e., storage capacity), so it is very sensitive to any disruption. The withdrawal from investing in energy produced from hydrocarbon fuels means that there are no alternatives, and accordingly, the future is also expected to be volatile. It is estimated that by 2024, the demand for gas will increase by 7% compared to the period before the Covid-19 pandemic, while the demand for Liquefied Natural Gas (LNG) that can be transported by ships is expected to grow by only 3.4% each year until 2035.

The East Mediterranean Gas Forum (EMGF) was established in September 2020 as a joint initiative of Israel and Egypt, following discoveries of natural gas in the

⁵ "Recommendations of the CEO Committee for the Promotion and Development of Haifa Bay", Prime Minister's Office, National Economic Council, April 26, 2021 [Hebrew].

Mediterranean. For the past year and a half, the Ministry of Energy has worked with Italy, Greece, Jordan, Egypt, Cyprus, and the Palestinian Authority to establish the organization and formulate its constitution, which was signed with initials in January 2020 by the members' energy ministers. In order to make a forecast for natural gas demand for the Israeli economy until 2045, a team led by the director general of the Ministry of Energy examined the need to explore additional natural gas reserves in the next decade, in order to maximize gas production potential before the 'window of opportunity' closes and gas remains unused. According to the team examining the government's policy on the gas economy, if Israel does not act this way, it could lose up to NIS 230 billion in direct gas revenues – from royalties, income tax and the taxation of permit profits ('Sheshinsky Tax').⁶

Our insight on this issue is that the program of exploration and production of gas reservoirs in the maritime domain must be continued until the program for meeting the goals set by the government with regard to alternative energies is of a high level of reliability.

In 2021, the Israeli government has set a new target of 30% for electricity generation using renewable energy by 2030, but this target seems very ambitious. Israel does not meet the moderate intermediate targets it has set for itself for 2020 (reaching 10% of electricity generation using solar and wind). The conclusion is that it would be right to continue with additional gas exploration at sea alongside the development and construction of facilities for the production of renewable energy.⁷ As for the situation of the "Wealth Fund": a report by the Knesset Research and Information Center states that the expectation of the Bank of Israel that NIS 3.8 billion will be transferred to the Gas Profit ('Wealth Fund') in 2018-2022 is excessive, and actual revenues, at best, will reach only NIS 1 billion at the end of 2021". The reason: additional costs that were recognized for the Tamar reservoir as "search and development" expenses.

Protecting Israel's energy production infrastructure: In Operation Guardian of the Walls in May 2021, Hamas fired rockets at the Tamar rig, launched an unmanned aerial vehicle intercepted by the Israeli Air Force, and attempted to launch an unmanned submarine that was destroyed on the shoreline. At the beginning of the escalation, the Ministry of Energy, in consultation with defense officials, ordered the shutdown of operations at the Tamar rig and an additional energy infrastructure

⁶ Anat Roa, "The price of non-production of gas: NIS 230 billion", *Calcalist*, June 2, 2021 [Hebrew].

⁷ "Energy Economy Goals for 2030", Executive Summary, State of Israel Ministry of Energy, 2018 [Hebrew].

facility. This move drew criticism from the defense establishment, claiming that the Navy's mission is to protect these facilities even in emergencies, and to allow their operation to continue (as was the case in Operation Protective Edge).⁸

In the budget allocated for securing Israel's EEZ that was approved for the Navy, the Navy undertook to protect and enable the continuous operation of the energy infrastructure against a sudden attack, or during a regional campaign.

Our insight on this issue is that over time new threats develop that are not necessarily the threats against which the current Navy Order of Battle (e.g., Sa'ar corvettes – 6) was built, and that the naval arm must think of an appropriate response against diverse scenarios including protection of Karish and Tanin fields when activated.

The purchase order of the Navy's submarines and surface vessels

In July 2021, Israel's High Court of Justice rejected petitions requesting the establishment of a commission of inquiry in the "3000 case" (the purchase of submarines) and the opening of a criminal investigation against former Prime Minister Benjamin Netanyahu in the stock case. In the vessel case, the court insisted that from a legal point of view the decision to set up a commission of inquiry should be made by the government, and the court's intervention in this decision is exceptional and rare. However, the court has raised a number of unanswered questions, noting that apparently, the decision-making processes among the relevant authorities is worrying – and these doubts deserve a public response. Defense Minister Benny Gantz said after the decision that "the criticism of the High Court of Justice regarding the shortcomings in the process of purchasing the submarines and vessels, and the situation in which the IDF and the defense establishment were pushed aside in the decision-making process, requires an in-depth examination of the issue", and added that "I will continue to lead, together with my partners in the government, the establishment of a national commission of inquiry soon."⁹

Our insight on this issue is that regardless of the process of appointing or not appointing a national commission of inquiry, the defense establishment and especially the Navy, must investigate all procurement processes while emphasizing control and conflicts of interest issues, to ensure such incidents do not recur in the future.

⁸ Amir Bohbot, "The IDF prevented attempts to attack the Tamar gas rig during the 'Guardian of the Walls'", *Walla*, May 16, 2021 [Hebrew].

⁹ Matan Wasserman, "The High Court of Justice Rejected the Petitions Demanding the Establishment of a Commission of Inquiry in the Submarine Case", *Maariv*, July 22, 2021 [Hebrew].

Challenges of Israeli sailing in the Red Sea and the Arabian Sea

Since the beginning of 2019, the naval arena was added to the air and intelligence campaign when reports of mishaps and explosions in Iranian ships began to spread around the world, mainly about oil tankers on route to Syria. At the time, the issue was not related to Israel and it was probably also convenient for the defense establishment to ignore the Iranian messages that these actions will not go unanswered.¹⁰ Israeli companies engaged in maritime trade assumed several years ago that the non-affiliation of ships to the State of Israel would lead to their immunity against any harm, including Iranian harm, which has been proven in recent events as an incorrect assumption. When these companies turned to the appropriate authorities in Israel for instructions on how to act under this situation, the instructions they received suggest that the bodies that allegedly approved the naval campaign against Iran did not take into account such a response, i.e., they applied only operational thinking without examining strategic implications. The vessels were left without an adequate response.

On the night of July 29-30, 2021, Iran struck for the fourth time off the coast of Oman the Japanese-owned *Mercer Street* tanker, operated by the Zodiac company owned by the Israeli businessman Eyal Ofer. Unlike previous attacks that ended in no casualties, two crew members were killed in the attack. Iran has not explicitly accepted or denied responsibility for this, but a state-owned television channel described the attack on the ship as a response to an Israeli attack sometime earlier at a military airport in Syria. It should be noted that in early July, a cargo ship formerly owned by the Zodiac Company was apparently accidentally attacked by Iran in the Indian Ocean. According to a number of testimonies the attack in late July was apparently carried out by several Iranian drones that crashed near the crew quarters located near the command bridge.

Since this was the fourth attack on ships that are managed by an Israeli company, and which is part of a campaign that Israel has allegedly begun to conduct against Iran in the maritime domain in the last two years, it is worth asking two questions: first, how much do these actions contribute to Israel's campaign against Iran's nuclear program (or what is the measure of the strategic effectiveness of such actions), and the second, whether the political echelon that approved the implementation of these actions took into account the possible reactions of the Iranians against Israel in the maritime domain, a domain in which Israel depends entirely on its

¹⁰ Daniel Avis, "Understanding the Shadow War Between Israel and Iran". *Bloomberg*, August 4, 2021.

trade with countries worldwide. There is no doubt that at the operational level, if Israel is behind the attacks, these are bold and successful actions that deserve much praise. However, this is a clear example of the decision-making process in the Israeli defense establishment that was carried out at the operational level only without examining the broader implications at the strategic level for this type of activity. It is worth noting that the response attributed to Iran mentioned above, took place in areas far from Israel, where the capability of the Israeli Navy to respond is limited, while it exposes Israeli shipping in the Red Sea, the Gulf of Aden and the Persian Gulf (Including tankers transporting fuel to the EAPC in Eilat) to risks that Israel has difficulty dealing with. To address this limitation, Israel has decided to tighten its cooperation with the United States Fifth Fleet (a move that the Maritime Policy & Strategy Research Center recommended more than a year ago).¹¹ Apart from the operative steps taken, this was also reflected in the diplomatic arena, during the well-publicized visit of Israeli Foreign Minister Yair Lapid to Bahrain on September 30, 2021.¹² During that visit, Lapid met with the commander of the US Fifth Fleet, Vice Admiral Brad Cooper, on board *USS Pearl Harbor*, and discussed cooperation facing the Iranian threat against Israel, and stated that "when we talk about peace, we need to remember that peace must be protected from those who would harm it".¹³

Our insight on this issue is that in the context of what the IDF calls the campaign between the wars (CBW), the strategic implications of operations in the maritime domain and their broad implications (including on Israeli trade) should be examined, and only afterward – make a decision. Since the naval campaign in the southern Red Sea and Arabian Sea is beyond the independent naval capabilities of the Israel Navy, operational collaborations with friendly navies and especially the US Fifth Fleet and Central Command should be stepped up.

Demarcation of maritime borders with Lebanon

In May 2021, talks resumed on the issue of the maritime border with Lebanon between the Israeli delegation and the Lebanese delegation mediated by Ambassador John Desrocher at the UNIFIL base in Naqoura, but they did not lead to any progress.

¹¹ Shaul Chorev, Douglas Feith, Gary Roughead, Seth Cropsey, Jack Dorset, *The Eastern Mediterranean in the New Era of Major-Power Competition: Prospects for U.S.-Israeli Cooperation*, Hudson Institute & HMS, September 2019, pp. 37–38.

¹² Shaul Chorev, Douglas J. Feith, Gary Roughead, Seth Cropsey, Jack Dorsett, "Why does US Central Command now include Israel? – opinion". *The Jerusalem Post*, January 28, 2021.

¹³ "Top Israeli diplomat visits Bahrain, U.S. navy base in signal to Iran", *Reuters*, September 30, 2021.

The purpose of the Israeli delegation, as defined by the then Minister of Energy, Dr. Yuval Steinitz, was "to examine the possibility of reaching an agreement on the determination of the maritime border between the countries and to find a solution that will enable the development of natural resources in the region for the benefit of the residents of the region".¹⁴ Despite the lack of progress in the negotiations, the Maritime Policy & Strategy Research Center has been arguing for more than two years that the solution to the dispute over the maritime border with Lebanon should be through US-mediated political negotiations.¹⁵

Until October 2020, the dispute with Lebanon was over an area of approximately 860 square kilometers located between Rosh Hanikra and the middle of the sea between Israel and Cyprus. It seemed that the dispute was more or less defined and that the solution based on the division of 45% of the territory to Israel and the rest to Lebanon was probably agreed upon. But then, in October 2020, the Lebanese delegation surprised Israel and the American mediator with a new demand that expanded the disputed area by additional 1,400 square kilometers. The Lebanese justified their new position by saying that the new borderline they drew meets, in their opinion, the requirements of international law – the Convention on the Law of the Sea.

One of the obvious reasons for the dramatic change in the route of the border line was the Lebanese desire to gain a foothold in the Karish reservoir, which is under the control of Israel. The new route they drew is stretched in a more southerly direction crossing the reservoir at its center. The Lebanese are now seeking not only to demarcate the maritime border with Israel but also to discuss the terms of the partnership and the exploitation of the reservoir, and they have even threatened that if their requests are not answered they will turn to international courts to claim their rights.

In the fall of 2021, President Biden appointed Amos Hochstein, a Senior Advisor for Energy Security in to the US State Department, as the new mediator between Israel and Lebanon on the issue of the maritime border and the dispute over Mediterranean

¹⁴ Announcement by the Ministry of Energy Spokesman, "The Israeli delegation for talks regarding the maritime border between Israel and Lebanon", *Ministry of Energy website*, May 4, 2021 [Hebrew].

¹⁵ Benny Spanier, *In Peaceful Ways, Examining the Dispute on the Maritime Border between Israel and Lebanon in the Mirror of Maritime Law* (Haifa: The Maritime Policy & Strategy Research Center, University of Haifa, July 2019) [Hebrew].

gas reserves. He is expected to arrive in the coming months for the first round of talks in Beirut and Jerusalem.¹⁶

One of the significant points of contention with Lebanon is how Israel's coastline is drawn. The Lebanese, rightly, claim that the current law in Israel defines that the maritime areas are measured from the low tide of the sea on the coast. They say that this makes it easier for them to draw a border line route that also includes the Karish reservoir. Israel, for its part, creatively it must be said, defines the coastline differently, so that it is significantly moved to the west of the coastline. This affects the location of all maritime areas, its borders and of course the location of the reservoirs relative to the border. But this line, as stated, is currently not valid and makes it difficult for Israel to deal with Lebanon's claims.

Our insight on this issue is that Israel should continue negotiating, but at the same time it should define its borders and authority at sea, and show that the maritime domain is not open for everyone and that as a littoral country, it has "maritime awareness" rather than "maritime blindness".

Israel's Accession to the United Nations Convention on the Law of the Sea (UNCLOS)

In light of the changes in power in the United States and the Biden administration's agenda of returning to international agreements, it is possible that the administration will try to promote a number of international conventions and agreements, including human rights treaties, environmental agreements, arms control agreements, and UNCLOS.¹⁷ In this context, but not only, the Maritime Policy & Strategy Research Center held a closed workshop in March 2021, in order to examine whether this is the right time for Israel to join the Convention. Although this is presumably a legal matter, the pros and cons are broad and related to geopolitical issues.

A number of reasons have led to Israel not joining UNCLOS so far. These include the historical reason for the PLO signing the Convention; a mandatory arbitration mechanism in the Convention for resolving conflicts; the difficulty of Israel's military to act at sea against terrorism in light of the Convention; the degrading of Israel's

¹⁶ Barak Ravid, "Biden confidant to mediate Israel and Lebanon's maritime border dispute", *Axios*, October 2, 2021.

¹⁷ Steven Groves, "Key Treaties That Threaten American Sovereignty, Which the Senate Must Oppose During the Biden Presidency", *The Heritage Foundation*, Issue Brief No. 6045, Margaret Thatcher Center for Freedom, January 28, 2021.

freedom of navigation through the Straits of Tiran (compared with the freedom it obtained in the peace treaty with Egypt) as well as the non-accession of the United States to the Convention.

A variety of opinions and issues arose in the workshop. From the political and public relations point of view, it would be appropriate to join UNCLOS as a symbol of supporting the abstract idea of the rule of law, especially with regard to law-making conventions for the international community and as a mark of supporting the goals of the Convention. As for the actual policy, the question of advantages and disadvantages arose. On the one hand, joining UNCLOS does not increase the IDF's scope of operational activity at sea. On the other hand, there was concern about the use of the conflict resolution mechanism to challenge Israeli military activity. Although the obligatory mechanism can be bypassed there is no certainty and it should be borne in mind that such harm is possible. The same applies to the demarcation of maritime borders. On the one hand, there is a concern that Israel's neighbors might initiate an arbitration process, but on the other hand, there are those who believe that joining the Convention will actually make it possible to challenge the neighboring countries and promote the resolution of this matter. Concerning freedom of navigation, it is clear that Israel has other means for dealing with a possible attempt to limit its freedom of navigation in the Straits of Tiran. There is an understanding that the solution lies in settling relations with the relevant countries and not in the legal status. The accession to the Convention can actually be beneficial as it is the common normative basis to understandings.

Does Israel need the Convention in order to conduct its activities in the maritime domain on the issue of gas? The speakers insisted that Israel already has powers over the EEZ. It takes into account the customary aspects and the state regulation, thus it can continue without joining UNCLOS. However, the creation of a clear normative infrastructure of the Convention will encourage companies and corporations to join and participate in the search for resources, given the stability and certainty. Here, too, the promotion of the Marine Areas Law could constitute another aspect in the consideration of whether to join the Convention.

Our insight on this issue is that the arguments for and against Israel's accession to UNCLOS are not conclusive and therefore we must continue to engage in the subject while creating a dialogue and thinking about the various issues – opportunities and risks – between academia, researchers and government. It will allow the identification of the correct time for accession to UNCLOS and would allow Israel to promote this move at the appropriate time.

The relationship between Israel and Turkey

In recent months, and especially since the 36th Israeli government took office, Turkey has been trying to get closer to Israel. This was particularly noticeable in the telephone conversation between President Recep Tayyip Erdogan and Israel's President Isaac Herzog that took place on July 12, shortly after Herzog took office. We have recently witnessed a meaningful decline in the rate of anti-Israel condemnation by the Turkish Foreign Ministry, and Turkey was one of 52 countries that supported a joint declaration by the Abraham Accords countries – Israel, UAE, Bahrain and Morocco – on women, peace and diplomacy. It should also be noted that the volume of mutual trade between Israel and Turkey in 2020 stood at \$5.75 billion (\$1.41 billion in exports and \$4.34 billion imports), a figure that reflects a slight decrease of approximately 0.2% compared to 2019, but it reflects tight and continuous relations.¹⁸ The Maritime Policy & Strategy Research Center held a number of conferences on Turkey and its conduct in the Eastern Mediterranean. In addition, in February 2021 – with the assistance of the Israeli Representation in Ankara – the Center signed a cooperation agreement with the Turkish Institute (Türkiye Enerji Stratejileri ve Politikaları Araştırma Merkezi – TESPAM) based in Ankara.

Our assessment is that Erdogan's reaching out to Herzog is a signal of seriousness on the Turkish side, which deserves attention on the Israeli side. Of course, the Turks must understand that it will not be possible to bypass the office of the Prime Minister of Israel, Naftali Bennett, and no Israeli institution should create the impression that this is possible. Moreover, Israel must make it clear that any progress made in relations with Turkey will not come at the expense of its relations with Greece, Egypt or the United Arab Emirates. However, Israel should support a political settlement (and not only according to UNCLOS) regarding the dispute between Turkey and Greece in determining their economic waters. Israel must make it clear to Turkey that the incident of the expulsion of the research ship *Bat Galim* by the Turkish navy ships is unacceptable to Israel as the consequences of such an event could be far-reaching with regard to freedom of navigation to and from Israel. Future cooperation between Turkey and Israel could be built around the activities of energy companies in the region, which due to diplomatic and security importance is likely to receive the blessing of the US administration despite its policy of reducing the development of fossil fuel reserves around the world. In addition, cooperation in all the countries of the region can be promoted in the domain of environmental security that does not distinguish between maritime borders, and will provide

¹⁸ "Israel-Turkey Mutual Trade Data", Ministry of Economy and Trade, May 25, 2021 [Hebrew].

a solution to events such as seawater pollution, maritime accidents and natural disasters. After building a relationship of trust between the countries of the region, it will also be possible to settle the demarcation of maritime borders in the eastern basin of the Mediterranean. This is a complex process, but Israeli decision-makers need to understand that despite its relations with Greece and deep understandings with Egypt, Israel will not be able to export gas to Europe without close coordination with Turkey, which serves as one of its important energy corridors. However, Israel and Turkey, two countries that are not signatories to UNCLOS and are known for their preference for political solutions over the involvement of international bodies, could actually be the ones to promote it. Turkey is on a path of rapprochement with Egypt and the prospect of an end to the civil war in Libya after the general elections in the coming year may alleviate regional tensions.

Our insight on this issue is that it is very important for Israel to address the change that has taken place in its strategic position in the Middle East upon the transition of power in the United States. What Israel and Turkey have in common is that in the past both have been allowed to advance a pressure-free regional policy with the blessing of President Trump. Nowadays, Turkey will not be able to operate in the eastern Mediterranean as it has in the last two years of President Trump's tenure. This situation should increase cooperation between Israel and Turkey, and both will have much to gain from it.

The domain of Shipping and Ports

Israeli Ports: In the previous annual report we pointed out that despite the crisis created by the Covid-19 pandemic, Israeli ports were able to adapt their operation and adopted a new regime of labor, hence Israeli citizens experienced almost no mishaps in the field of import and export. However, if the outline of an epidemic is replaced by a security event such as rocket and missile fire on Israel, it is likely that merchant ships that do not carry the Israeli flag, or are not Israeli-owned, will stop visiting Israeli ports. In our opinion, the ports and merchant fleets intended for transporting vital supplies to Israel in an emergency are part of a national infrastructure that a state like Israel must maintain in one way or another due to its unique situation.

At the beginning of September 2021, the Haifa Bayport was inaugurated, which will be able to accommodate huge ships carrying up to 18,000 containers. The Chinese company SIPG, which is responsible for operating the port, has not yet signed on regular lines with the large shipping companies; therefore, full operation of the port will only begin in 2022. The operation of the Southern Port within the Port of Ashdod

is also expected to begin during 2022, which will add an essential infrastructure for Israeli trade. Despite this, since March 2021, heavy traffic has been recorded at the entrances to the ports in Ashdod and Haifa (a fact we have already pointed out in previous situation assessments). According to data from the Israel Port Company, waiting times have increased significantly and dozens of merchant ships are waiting for many days to get service.¹⁹ In April 2021, the Chamber of Shipping of Israel, The Federation of Israeli Chambers of Commerce, Manufacturers Association of Israel and the Council of Carriers contacted the then Transport Minister Miri Regev, claiming that the ports had an "operational state of emergency" and that the average waiting time for bulk carriers was almost 20 days (see Figure 1).

Our insight on this issue is that efforts should be directed to streamline port activity in the areas of general cargo ships and bulk carriers (ships carrying bulk cargo, such as grain, coal and metal ores).

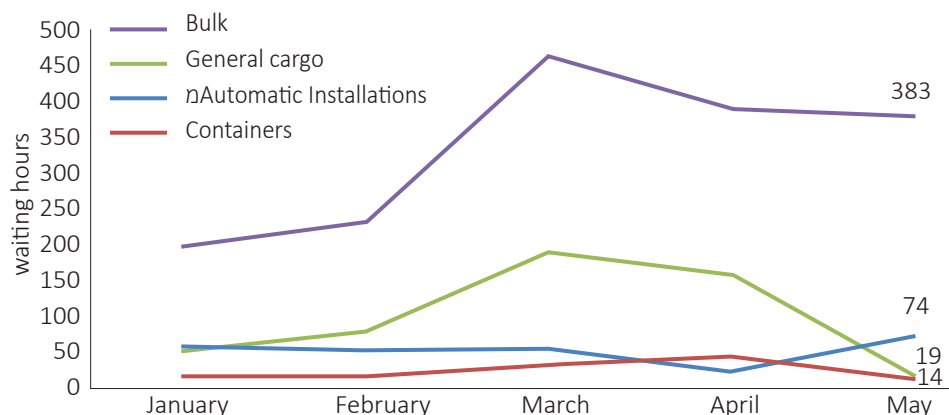


Figure 1: Average waiting hours at the ports of Haifa and Ashdod according to the type of cargo in 2021

Israeli shipping

The situation of Israeli shipping continues to be bad, both in terms of Israeli manpower serving on the ships, the number of ships owned by Israelis or carrying the Israeli flag, and in relation to the new taxation law (occupancy tax) promoted by the Ministries of Finance and Transport. The law, which was supposed to enter

¹⁹ "The estimated Impact of Congestion in Israeli Ports on the Economic Activity in Israel's Economy, September 2021", *Ministry of Finance, Division of Chief Economist*, September 2021, pp. 1–3 [Hebrew].

into force in January 2017, has been rejected, and now approving the law must start from square one, including the approval of the government and three readings in the Knesset. The law was supposed to encourage the acquisition of Israeli ships, and "save Israeli shipping from certain extinction".²⁰ The intention of the law was for a shipping company to pay tax for the occupancy of the ships it operates and not for its profits.

Despite this, the shipping company ZIM reported record results for the second quarter of 2021 and a 44% increase in the volume of container transport – significantly higher than the growth in the market, and that the results of the second half of 2021 are expected to exceed the results of the first half. This indicates that proper management of the company, utilization of opportunities and correct strategic vision (the increase in transportation prices worldwide by more than 200%), make it possible to achieve nice achievements.²¹ It should be remembered that in 2004, the Israel Corporation purchased the remaining shares of ZIM owned by the government, thus completing the privatization process of ZIM. The current ownership structure was determined after extensive reorganization processes conducted in 2014. The state does not take care to maintain the 'gold stock' that is allegedly in its hands.

Our insight is that changes in the world's and Israel's shipping industry are occurring, so even if the policy set at the time of ZIM's privatization is no longer relevant, a new policy must be adopted as part of Israel's maritime strategy, after all meanings have been understood and not as a default. The Marine Institute for the training of naval officers should maintain the professional knowledge in both the deck and machine majors and adapt it to new ships (new types of propulsion and advanced navigation systems).

The State of Israel as a startup nation in the maritime domain

Approximately 80% of the world trade is conducted at sea, and the marine domain-based economy produces \$3 trillion in services and products each year. Despite the impressive data, the world of innovation as well as startup companies in Israel are still not fully utilizing the vast resources that exist in this domain. When compared to a number of ventures in other industries, marine technology in Israel is still in

²⁰ "\$110 billion has been deleted, the rules have changed and a new era has opened", said Yoram Zeba, the President of the Chamber of Shipping for the fifth shipping day, October 23, 2018 [Hebrew].

²¹ "ZIM at a New Peak: Net Profit of \$888 Million for the Quarter," *Port2Port System*, August 19, 2021.

its infancy. In the Maritime Strategic Evaluation for 2017/18, the issue has been examined in an article entitled "Can Israel Become the Startup Nation for the Maritime Domain?"²² The main recommendations of the article were: to recognize the shipping and ports sector as a developing technology sector, allocate resources and funds to support the domain, integrate Israeli marine technologies in global and regional projects and initiatives, focus on the urban level, and act as an attraction for global players.

In September 2020, the inter-ministerial committee dealing with the maritime domain and the development of the 'blue economy', headed by the Director General of the Planning Directorate, and the presence of the Chairman of the National Planning and Construction Council, approved a plan for developing a marine technology business community in Haifa. The committee's decision stipulates that the Haifa Municipality, together with the School of Marine Sciences at the University of Haifa and other stakeholders, led by the Planning Directorate, will develop a multi-year strategic plan to establish a National Marine Innovation Center including a physical, entrepreneurial, economic, structural and international action plan. The National Innovation Center will be established according to the plan in the Innovation District near the port, and will be a vibrant center of activity, which also includes marine activities with academic, economic, engineering and security cooperation.

Our insight is that the move of the inter-ministerial committee dealing with maritime domain is in the right direction, but should be accompanied by additional steps from other government bodies like the chief scientist of the Ministry of Science and the Innovation Authority dealing with research and development at the national level.

Preparing to deal with cyber-domain threats

The global economy is almost entirely dependent on maritime trade and the consequences of disruption to the maritime supply chain following a cyber-attack are not limited to a number of raw material-dependent manufacturing industries but affect a large number of goods that depend on this supply chain. The emergence of cyber threats as part of the asymmetric and hybrid warfare in the maritime domain, both in terms of information technology and in terms of operational technology, while using private and advanced technologies in order to achieve strategic value, makes the naval arena extremely vulnerable. In the recent decade, shipping, ports,

²² Hannan Carmeli, "Can Israel Become the Startup Nation for the Maritime Domain?" *Marine Strategic Evaluation for Israel 2017/18* (Haifa: The Maritime Policy & Strategy Research Center, University of Haifa, 2018), pp. 210–217.

and gas and energy production facilities have become very dependent on computer and control systems based on operational technologies that cause difficulty in analyzing the consequences and losses actually caused by maritime cyber-attacks.

Planning the response to the cyber threat in the maritime domain should be reflected in the training, construction of counter-technical tools, and operation at the level of necessary organization for cyber protection in that vessel. The thinking or planning should be integrated into the traditional naval structure.²³ At the first cyber conference in Israel held in July 2021 in the port of Ashdod as part of the Israeli Cyber Week, Yigal Unna, head of Cyber Israel – National Cyber Directorate, said that "one of the advantages we have in Israel as a startup nation is that everything is close and everyone knows each other, and that is a huge advantage in the field of cyber defense". He added that "we need to run faster, promote the existing Israeli cyber ecosystem and create information sharing and partnerships that have already been proven to be the best tools for dealing with cyber challenges. The entire global marine system is already connected, we need to ensure fast and transparent cooperation for everyone".²⁴ Our insights are that a conference on cyber threats in the maritime domain held at the Israeli Cyber Week is the right step in enhancing awareness of threats in this domain and encouraging international cooperation, but it requires complementary steps such as publishing policies for the Israeli ports and shipping sector and monitoring their defense plans against cyber threats.

The State of Israel's preparation for disasters in the maritime domain

The marine pollution disaster in tar along the shores of Israel that began on February 17, 2021, was a medium-level marine pollution event. It affected beaches, the sea and nature along all of Israel's Mediterranean shores. During the incident, marine waste of tar originating from crude oil was discharged to the shores of Israel. After about a month, the Ministry of Environmental Protection reduced the state of emergency status on the beaches to level 1, and allowed the public to return to most of the beaches.²⁵ Following the incident, the Ministry of Environmental Protection submitted a memorandum of the Law of National Plan for Preparedness

²³ Peter Dombrowski and Chris C. Demchak, "Cyber War, Cybered Conflict, and The Maritime Domain", *Naval War College Review*, 67(2), (2014), p. 7.

²⁴ Lior Novik, "For the First Time in Israel: An International Conference of Experts in the Field of Marine Cyber", *Maariv*, July 29, 2021.

²⁵ "Tar in a storm: The Ministry of Environmental Protection is working to locate the source of the severe sea pollution that flooded the shores of Israel with tar", *The National Unit for Marine Environmental Protection*, Ministry of Environmental Protection, February 22, 2021 [Hebrew].

and Response to Marine Oil Pollution Incidents, designed to address similar future incidents regarding the "preparation of emergency plans, the establishment of a rapid response system using equipment, ships and skilled personnel to handle marine oil pollution, as well as the establishment of an international cooperation mechanism".²⁶ The Maritime Policy & Strategy Research Center in collaboration with the Minerva Center for the Rule of Law under Extreme Conditions at the University of Haifa reviewed the memorandum of the proposal for the law, found it incomplete in several areas, and submitted their reservations to the Ministry of Justice.²⁷ In order to deepen the understanding of the way of handling such scenarios, this topic was chosen as the theme of the annual conference of the Wydra Division for Shipping and Ports held in September 2021.

Our insights on this subject are: The sea is a unique domain in many aspects and the operation in the marine environment requires professional expertise and dedicated tools. Today, most of the capabilities of State of Israel in the maritime domain are held by the Navy, while the other bodies (Israel Police, Fire and Rescue and Environmental Protection) usually have specific capabilities that are more limited than those required to handle a large-scale incident. The event should be defined as a "civil emergency", which means: "an event that causes serious harm to public safety, security of mind or property relating to a large public or large area, or an event in which such harm is feared, including due to natural hazard, environmental hazard, dangerous goods event, chemical or biological event, radiological event, accident or hostile terrorist activity".²⁸

There is no Coast Guard in Israel as in other countries that deals with policing, rescue, handling of dangerous goods incidents and more. Israel needs to have one body to manage its maritime domain and monitor the maritime status. Such a body would be responsible for including the policy for the maritime domain and for regulating its activities on a routine basis and would also be responsible during an emergency event. In the current situation in Israel, only the Ministry of Defense (through the IDF and the Israeli Navy) and the Ministry of Internal Security (through the Israel

²⁶ "Memorandum of the Law for Preparedness and Response to Marine and Coastal Environment Pollution in Oil Incidents, 2021", *Ministry of Justice, Government Legislative Website*, March 29, 2021 [Hebrew].

²⁷ Ibid. "Comments of The Maritime Policy & Strategy Research Center HMS, The National Knowledge and Research Center for Emergency Readiness and the Minerva Center for the Rule of Law under Extreme Conditions for the Memorandum of Law."

²⁸ Law Amending the Police Ordinance (No. 34), 2018, Law Book 2701 of 12 March 2018, on the Knesset website [Hebrew]

Police) are able, after settling the issue, to manage a civil emergency at sea. Given the capabilities developed by the Navy due to the need to protect the EEZ (and the many resources allocated to it), it seems that the Navy should be responsible for monitoring the maritime situation, while the first responders will act according to their areas of responsibility. The Law of National Plan for Preparedness and Response to Marine Oil Pollution Incidents should expand preparations for dealing with a wider range of civilian emergencies in Israel's maritime domain.

Preparing for climate change

According to the report written by the Intergovernmental Panel on Climate Change (IPCC), pollutant emissions have led to an increase in extreme weather events – which are expected to continue rising rapidly in the coming years. "Many changes are unprecedented in thousands, if not hundreds of thousands of years. Some, such as continued sea-level rise, are irreversible over hundreds to thousands of years." This report, as well as previous ones, estimate that by 2041, the average temperatures on Earth will be 1.5 degrees Celsius higher than in the Industrial Revolution.²⁹ The report warns that extreme events – such as heat waves, long droughts and heavy rains – will become more frequent and more extreme as the earth continues to warm up. The expected changes in our region will be: an increase of 4° Celsius (compared to the average of 1988 – 2017), a reduction in the amount of precipitation by an average of 10%-20% by the end of the century, increased extreme weather events such as heat loads, flooding, floods and torrential rains, as well as an increase in sea level at a rate of 4 mm per year. In 2020, for example, a number of cities were flooded during the winter, floods that also claimed human lives, and in the summer, temperature records were broken by prolonged heat waves.³⁰

The Ministry of Environmental Protection established the inter-ministerial directorate by virtue of a government decision from July 2018, and its designation is presenting to the decision-makers all the currently available information on the subject and act to implement for the security of comprehensive national preparations. The directorate's Report No. 1 on geo-strategy and economics states that the impact of these changes on neighboring countries may lead to strategic

²⁹ The quote is from the [United Nations Climate Change](#) page: The full report: *Intergovernmental Panel on climate change IPCC, "Climate Change 2021, The Physical Science Basis Summary for Policymakers"*, Working Group I contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

³⁰ Alon Zasad and Sharon Rahav, "[The State of Israel's Preparation for Climate Change - Report No. 1](#)" *Ministry of Environmental Protection*, April 2021 [Hebrew].

threats and migration pressures in the affected areas. Water scarcity in neighboring countries could provoke regional conflicts over control of water resources, as well as to achieve peace agreements that include a commitment to supply water. Since the Middle East is characterized by geopolitical instability, the expected changes may have a more significant impact on the region's inhabitants. In the domain of coastal infrastructure (the only issue that directly relates to the maritime domain), this may lead to the retreat of the coastal cliff that will lead to the expansion of the area of risk to human life and the coastal infrastructure and assets built on and adjacent to it. Tourism and camping and holiday activities on the beaches are expected to be negatively impacted. Coastal structures and heritage sites might be damaged by the rise in the sea level.³¹

The directorate identified for the Israeli government key issues on which a policy should be formulated. Our insight is that the directorate's plan is partial and limited in scope, and does not address the impact of climate change on Israel's maritime domain as a whole. It is necessary to deepen the understanding of the links between effects and climate change and threats to maritime security, and it is necessary to conduct research on the interaction between climate change and maritime security and convert the research findings into policy documents. In order to examine these issues in Israel's maritime domain, it is appropriate that the Maritime Policy and Strategy Research Center will be represented in the directorate's strategy committee, which determines which projects will be given priority for budgeting and implementation in the immediate term, so that these issues will be mapped and handled.

Marine schooling and academic education in Israel

Following the increase in the importance of the sea component in Israel's security and resilience, the Mediterranean Sea Research Center of Israel was established in 2012. It is a consortium consisting of seven research universities, one college and two government research institutes, led by the University of Haifa. The consortium did not get a proper budget increase in 2021, thus effectively stopping the required expansion of its activities in the domain of Eastern Mediterranean research.

The Strategic Advisory Team for the University of Haifa, headed by Professor Joseph Klafter, former President of the Tel Aviv University, notes in this context that "the development of the marine sciences, which was founded over a decade ago with an impressive investment, has slowed down later on. An expanded and renewed

³¹ Ibid, p. 23.

Faculty of Natural Sciences, which will be discussed later, has great potential and a central place in correcting this situation, in promoting research at the university and in strengthening its position compared to other institutions".³² The committee's recommendations in relation to marine science state that "this domain places the University of Haifa in a unique key position on a national and international scale, and its further development with great momentum is required and necessary. Accelerating research activity in existing and new fields of marine science, including connections to other fields of knowledge, will require new magnitudes of resource investment. Such an investment cannot be based solely on internal sources, and it would be appropriate to harness the support of the Planning and Budgeting Committee within the Council for Higher Education as well."³³

Our insight is that given the independent status of the School of Marine Sciences at the University of Haifa, it is important that the curriculum in "Security and Marine Strategy" which operates as an independent program, will come under the School of Marine Sciences.

Education and training of officers in the Israeli Navy

The Master's Degree Program at the University of Haifa on National Security and Maritime Strategy is an appendix program of the International Relations Division at the School of Political Science at the University of Haifa. The program is entering its fourth year, and is perceived as a prestigious program. The importance of the subject and the need to train future researchers in this domain requires it to be transformed into an independent program in the academic year 2022/23 and be included in the university's five-year programs.

During a visit by the Navy Commander on March 7, 2018, with the participation of senior officials at the Naval Headquarters at the Marine Policy and Strategy Research Center at the University of Haifa, he concluded that "The master's degree program in national security studies and naval strategy for naval officers who are graduates of a naval cadets course should be attractive, and its target audience will include seafarers. It will last two years and include a research track".³⁴ Accordingly, the

³² "Recommendations of the Strategic Advisory Team to the University of Haifa" are submitted to the President of the University of Haifa, Prof. Ron Rubin, and to the University's Management, 2021, p. 13. [Hebrew]

³³ Ibid, p. 14.

³⁴ Roi Sasson, Visit to the University of Haifa (Haifa Center for Marine Policy and Strategy Studies) – Summary of the Navy Commander, March 8, 2018.

population of naval officers in middle-rank positions (after command of a vessel) has been designated as one of the target audiences of the program.

Unfortunately, after three years in which the program has been in place and despite the abovementioned, the Navy has not yet formulated its position on the vitality of the program for the training of its officers, and especially for the training of the core officers in the Naval Officers track. A large part of naval officers who go studying choose an academic institution close to their place of residence, or with a non-demanding master's degree. Only one officer who joined the program chose the research track. Even senior officers sent to study at the National Security College (sponsored by the University of Haifa) do not study for a research degree. The Command and Staff Alon Program for naval arm trainees does not include maritime subjects, officers who go to study at military institutions abroad (Naval War College, Canadian Forces College), complete the school year without any academic credit. There is no doubt that the current situation produces less qualified officers, especially those who reach senior positions.

Our insight on this issue is that with the entry of a new Navy Commander into the post, it is appropriate to re-examine the training course of naval officers in military colleges and academic institutions, and in this context also establish a policy regarding those going for a master's degree academic studies in a security and naval strategy program.

Recommendations for an Israeli policy

This Maritime Strategic Evaluation is a policy-oriented document, as opposed to an academic document, and accordingly, we found it appropriate to summarize it in ten recommendations addressed mainly to the political echelon, the various government ministries and the Israel Navy. All recommendations are at the level of government policy in the domain of maritime policy. The order in which the recommendations are presented does not necessarily represent their importance, or the degree of urgency required to address them.

First recommendation – formulation of a grand maritime policy and strategy for Israel

As in previous years, there has been no progress on this issue in 2021. It has not even been mentioned in any of the 40 points of the basic guidelines for the formation of a unity government (the 36th Government of Israel) published in June 2021. Apart from the Eastern Mediterranean region where changes that require the formulation of a maritime strategy are taking place, the sea areas around Israel – both the Mediterranean and the Red Sea – are undergoing significant changes, which require redefining Israel's interests in the region, and including them in Israel's maritime policy and strategy.

Second recommendation – formulation of Israel's foreign policy in the eastern Mediterranean and the Red Sea

Israel's interests in the Eastern Mediterranean and the Red Sea, and what is the appropriate policy to realize these interests, must be defined. In the Red Sea, the issue is more urgent and related to the new and distant threats against Israeli shipping that have increased significantly following the expansion of Israel's campaign against Iran into the maritime domain. Recent events in the southern Red Sea and the entrance to the Persian Gulf, should be studied, because organizations that were operational by Iran and militias like the Iranian Revolutionary Guard used asymmetric and hybrid naval warfare tactics (including drone strikes), and an appropriate operational response should be formulated.

Israel must examine the benefits and pitfalls that this activity imposes on the freedom of navigation of merchant ships in any way related to Israel in the Red Sea, the Gulf of Aden, and the Persian Gulf (tankers carrying oil from the UAE to the EAPC). The Navy is required to test its capabilities to secure such a cruise, or alternatively get help

of the U.S. Fifth Fleet and other forces operating in the area by virtue of Security Council resolutions (CMF 150/151).

In the Mediterranean, previous annual reports noted tensions between Turkey and other countries in the eastern Mediterranean, including Israel. Following signals and messages conveyed by the Turkish authorities to Israel about their aspiration to improve relations between the two countries, we recommend exploring the possibility of improving relations with Turkey, supporting a political settlement for its economic water problem, and exploring the possibility of integrating it into the Middle East gas forum.

Third recommendation – the preparation and preparedness of the State of Israel for civil emergency events at sea

The coastal pollution event in the winter of 2021 revealed the lack of readiness of the State of Israel to deal with a civil emergency event in the maritime domain that includes the stages of discovery, inclusion, mitigation of the damage and handling of consequences). In Israel, there is no Coast Guard that in other countries is responsible, among other things, for dealing with civilian emergencies at sea. Therefore, one body should be defined as responsible for managing a civil emergency event in Israel's maritime domain, including continuously monitoring the situation in Israel's maritime domain. At the operational level, Israel has two government ministries capable of conducting civilian emergencies at sea: the Ministry of Defense (through the IDF and the Navy) and the Ministry of Internal Security (through the Israel Police). The Navy was budgeted for vessels and other capabilities that could allow it to monitor the maritime situation (even if this is done to protect the EEZ). In approving the memorandum of the draft bill on oil spill preparedness, in addition to the means and capabilities that will be handed to the Ministry of Environmental Protection, it must be determined that the Navy, in cooperation with other bodies, will be the body responsible for monitoring the overall maritime situation. It will also be important to determine by law who would be responsible for conducting a civil emergency event in Israel's maritime domain. In the absence of a Coast Guard in Israel, it seems that the responsibility for the issue should be placed on the Navy, or alternatively, establish a Coast Guard that will be subordinate to the Israel Police.

Fourth recommendation – preparation for climate change effects on Israel's maritime domain

It is proper to identify in advance threatening climate change scenarios and prepare for them.

The Ministry of Environmental Protection established the inter-ministerial directorate by virtue of a government decision from July 2018 and its designation is presenting to the decision-makers all the currently available information on the subject and act to implement for the security of comprehensive national preparations. When examining the Directorate's Report No. 1 on geo-strategy and economics, it seems that the committee addressed within the maritime domain only to coastal infrastructure.

The plan presented by the directorate is partial and limited in scope, and does not address the impact of climate change on Israel's maritime domain as a whole. It is imperative to deepen the understanding of the links between climate change effects and threats to maritime security, and it is necessary to conduct research on the interplay between climate change and maritime security and convert the research findings into policy documents.

Fifth recommendation – development and utilization of energy resources located in the sea and protection of the environment

Following the report written by the UN Intergovernmental Panel on Climate Change (IPCC) and the need to reduce greenhouse gas emissions, the question arose again as to whether Israel should continue developing the gas reserves in its economic waters.

In light of the conclusions of the team headed by the Director General of the Ministry of Energy, which examined the need for additional natural gas reservoirs in the next decade, and the energy market forecast by 2045, in our opinion, there is room to continue gas exploration in Israel's maritime domain, to maximize the profits from the production of this resource, and to channel them to the Wealth Fund in its original purpose.

Given the expected market conditions in Europe and the world in the coming years, the government and gas companies in Israel must concentrate their best efforts on developing the local and regional gas economy over seeking distant markets for export. The signing of the gas export to Egypt with the Tamar and Leviathan gas partnerships is definitely the right step in this direction. In our opinion, the gas pipeline project between Israel, Cyprus and Greece to Europe (Med East) is an ambitious project from an engineering point of view, and is not expected to be economically viable. The unilateral development of Cyprus in the 'Yishai-Aphrodite' joint reservoir, which is a cross-border natural gas reservoir between Israel and

Cyprus, requires the Israeli government to reach agreements with Cyprus as soon as possible regarding gas production from this reservoir.

It is appropriate to formulate an environmental policy, including readiness for dangerous events.

Sixth recommendation – promotion and organization of good order at sea

Israel should define its borders and governance at sea, and show that the maritime domain is not open for everyone and that it is a littoral country endowed with "maritime awareness" rather than "maritime blindness". The approval of the Marine Areas Law, 2017 in the Knesset must be completed. Non-promotion of the law might expose the state to claims in legal proceedings that will be required for the development of gas fields outside its territorial waters. In addition, it is necessary to correct the Planning and Building Law, 1965, which in its current form does not correspond to the nature of the activity in the deep sea.

Negotiations with Lebanon must be continued through American mediation on the demarcation of Israel's maritime border with Lebanon.

The reasons for and against Israel's accession to UNCLOS are not conclusive, and therefore we must continue to engage in the subject while creating a dialogue and thinking about the various issues – opportunities and risks – between academia, researchers and government. By this, it will be possible to identify the correct time for accession to UNCLOS and allow Israel to promote this move at the appropriate time.

Seventh recommendation – development of a human infrastructure for Israel's coping with the challenges in the maritime domain

The public resources required for investing in education and higher education systems must be determined in order to build an economic, social and human-professional infrastructure that can meet the challenges and opportunities inherent in Israel's maritime domain related to energy production and development, ecosystem protection, including industries that are needed for addressing these issues as well as the establishment of a 'Marine Association of Israel' that will serve as a platform for stakeholders discussions on the subject.

It is necessary to allocate a proper budget to the Mediterranean Sea Research Center of Israel, to ensure cooperation among all stakeholders on the subject, and

upgrade the status of the School of Marine Sciences at the University of Haifa to an independent school.

In view of the existing manpower crisis in the Israeli merchant navy and the apparent shortage of naval officers in the world, the number of Israeli cadets and officers at the Naval Officers' Training Institute in Acre must be increased, expand their curriculum and ensure that upon graduation they will be hired by shipping companies relating to Israel.

With the change of command of the naval arm, the arm must formulate its position regarding the academic training program of the middle-rank seafaring population going out to study and especially regarding their joining the Security and Naval Strategy program.

Eighth recommendation – the sector of shipping and ports in Israel

Following the beginning of operation of the Haifa Bayport and the South Port in the port of Ashdod in the coming year, it appears that Israel has succeeded in streamlining the port work in the domain of container ships. Efforts should be directed to streamline port activity in the areas of general cargo ships and bulk carriers (ships carrying bulk cargo, such as grain, coal and metal ores). In this context, the privatization of the port of Haifa (and later Ashdod) should be completed, thus increasing the efficiency of the ports in all types of cargo, including the handling of general cargo and bulk carriers.

Following changes in the shipping industry in the world and in Israel, and Israel's failure to maintain the 'gold share' within ZIM, or other incentive mechanisms for Israeli shipping such as the occupancy tax, a comprehensive and re-examination of Israel's policy in the shipping domain must be conducted, and establish a new policy on the subject at the end.

The international conference on cyber threats in the maritime domain held at the Israeli Cyber Week is the right step in enhancing awareness of threats in this domain and encouraging international cooperation, but it requires complementary steps of publishing policies for the Israeli ports and shipping sector and monitoring their defense plans against cyber threats.

Ninth recommendation – the State of Israel as a "startup nation" in the maritime domain

In September 2020, the inter-ministerial committee dealing with the maritime domain and the development of the 'blue economy', headed by the Director General of the Planning Directorate, approved a plan for developing a marine technology business community in Haifa. The committee's decision stipulates that the Haifa Municipality, together with the School of Marine Sciences at the University of Haifa and other stakeholders, led by the Planning Directorate, will develop a multi-year strategic plan to establish a National Marine Innovation Center including a physical, entrepreneurial, economic, structural and international action plan. The National Innovation Center will be established according to the plan in the Innovation District near the port, and will be a center of activity, which also includes marine activities with academic, economic, engineering and security cooperation.

The move of the inter-ministerial committee dealing with maritime domain is in the right direction, but should also be accompanied by additional steps from other government bodies like the chief scientist of the Ministry of Science and the Innovation Authority dealing with research and development at the national level.

Tenth recommendation – moving infrastructure from land to sea

Israel is one of the most densely populated countries in the world and this trend is getting worse over the years. In June 2012, the Israeli government decided to set up a special team to examine the feasibility of building artificial islands, on which infrastructure such as gas production facilities, power plants, airport desalination facilities, an airport, and military facilities would be built. Action must be taken to implement this decision.

In the plan to expand Israel's ports towards 2048, which will mark Israel's centennial, it is important that the plan be formulated in cooperation with the relevant authorities to prevent a situation in which conflicts arise between the port infrastructure and the municipal infrastructure (see the case of 'Haifa Bayport' blocking the possibility of expanding Haifa's airport).

A government resolution from October 2020, which requires that within a decade all preparations of the government bodies be completed so that the activity of the petrochemical industry in Haifa Bay is terminated, is an opportunity to determine which of these infrastructures will be located on artificial islands in the sea and prepare accordingly.