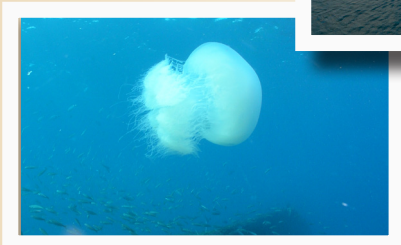
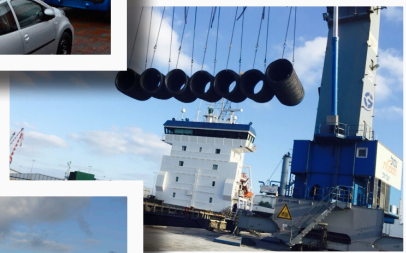
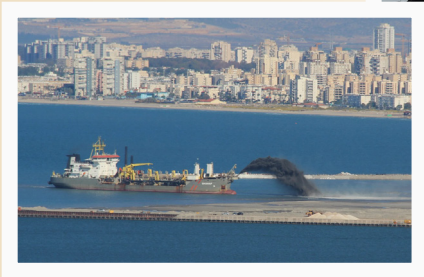


# MARITIME STRATEGIC EVALUATION FOR ISRAEL 2018/19

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## Marine Pollution: Source, Response and Prevention

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### Introduction

This chapter looks at marine pollution in Israel and surveys the legal situation with respect to the conventions for the prevention of marine pollution that apply to the Mediterranean, as well as the risks, the prevention and mitigation factors, and the legal situation in Israel in this regard.

### Background: The conventions for prevention of marine pollution

**A marine environment** is a body of salty water that contains complex systems of life with which it interacts.<sup>1</sup> The oceans and the seas cover 72 percent of the earth's surface and serve as a fertile substrate for rich and varied ecological systems. The oceans produce about 50 percent of the oxygen we breathe<sup>2</sup> and influence the earth's weather and climate.<sup>3</sup> The coastal sea (the sea between the shore and the edge of the continental shelf, of up to 100 meters in depth, and which accounts for only 8 percent of the oceans' area) is particularly important to mankind, since 60 percent of the world's population lives near it and about 90 percent of global fishing takes place within it.<sup>4</sup>

**Marine pollution** is defined by the Barcelona Convention for Protection of the Mediterranean Sea against Pollution (1976) as "the introduction by man, directly or indirectly, of substances or energy into the marine environment resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for use of sea water and reduction of amenities." Pollutants are categorized into seven main groups according to their chemical nature: nitrates (fertilizers) which can cause overstimulation of

- 1 Adler, A. (2000) "Marine environmental quality – is there such a thing?" *Sea and Shore 2000*, Ministry of the Environment, Sea and Shore Branch, pp. 3-7 [Hebrew].
- 2 Grof, Y. (2016). "The real lungs of the Earth," the Davidson Institute, the Weizmann Institute. <https://davidson.weizmann.ac.il/online/%D7%9E%D7%93%D7%A2-%D7%91%D7%9E%D7%91%D7%98-%D7%A2%D7%9C/%D7%94%D7%A8%D7%99%D7%90%D7%95%D7%AA-%D7%94%D7%90%D7%9E%D7%99%D7%AA%D7%99%D7%95%D7%AA-%D7%A9%D7%9C-%D7%9B%D7%93%D7%95%D7%A8-%D7%94%D7%90%D7%A8%D7%A5> [Hebrew].
- 3 Baum, D. (2000), "The oceans and the weather," *Sea and Shore 2000*, Ministry of the Environment, Sea and Shore Branch, pp. 38-41 [Hebrew].
- 4 Adler, 2000.

seaweed and changes in the populations of phytoplankton; heavy metals such as mercury, cadmium, lead and bromine, which can accumulate in the seabed and in the food chain; oil and its byproducts, which are poisonous to marine plants and animals and are liable to cause changes in the environment; synthetic organic materials, such as pesticides, that are liable to accumulate in the environment and the food chain; radioactive material that is likely to cause mutations and cancer; bacteria that are liable to infect humans and cause infectious diseases; and finally solid waste and in particular plastic, which is liable to kill large animals that get caught up in it or swallow it, and micro plastic (plastic particles that are smaller than five millimeters) that may contain hormones, among other things, and are liable to attach to organic and synthetic material that enters the food chain. The sources of these types of pollution are coastal factories, shipping, municipal waste and drainage of aboveground runoff in the cities and vacation spots.<sup>5</sup>

The area of the **Mediterranean** accounts for only about 0.7 percent of the oceans' total area and it is a closed sea that connects to the oceans by way of the Strait of Gibraltar (which is only about 14 km wide and about 300 meters deep). Its coasts have a dense population, to which are added tourists and vacationers each summer, who double the population. In addition, there is heavy traffic of ships in the Mediterranean and numerous marine infrastructures (in 2017 it was estimated that about 15 percent of global sea trade and about 10 percent of oil shipments by sea pass through the Mediterranean). Due to the low turnover of water and the widespread shipping and energy activity, the Mediterranean is highly exposed to the pollution that accumulates within it. Moreover, the dense traffic of oil tankers in the vicinity of the northern entrance to the Suez Canal and in the area of Port Said, as well as the discovery of oil and gas along the coast of Israel in recent decades and the accompanying production rigs and pipelines that bring the oil and gas products to the shore, have moved the risk loci closer to Israel's coast.

As awareness of the environment grew during the second half of the 20th century, there was increasing concern about the situation of the Mediterranean and there are those that even described it as a dying sea. However, many years of research have shown that although the situation of the Mediterranean is indeed worrying, there is

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5 Kress, N. (2000) "Marine pollution – sources, types and impact," *Sea and Shore 2000*, Ministry of the Environment, Sea and Shore Branch, pp. 95-98 [Hebrew].

a chance to save it if environmental measures are taken to protect the quality of its water and shores.<sup>6</sup>

As a result of the establishment of the United Nations Environmental Program (UNEP) in 1972, the Mediterranean countries began organizing to reduce pollution in the Mediterranean. Thus, in 1975, 16 Mediterranean countries and the European community adopted the **Mediterranean Action Plan (MAP)** which led to the creation of marine environment protection programs in additional regions under the umbrella of the UNEP. The foundation of these programs includes: preparation of protocols that are to be signed by the Mediterranean countries; creation of a Mediterranean monitoring system and study of the marine environment; and formulation of a socioeconomic program that combines socioeconomic development with a healthy environment. In 1995, the partners adopted a work plan for the protection of the marine environment and the sustainable development of the coastal regions of the Mediterranean (MAP II), which replaced the original plan.<sup>7</sup>

Following the writing of the initial protocols, the **Convention for the Protection of the Mediterranean Sea against Pollution** was adopted in Barcelona in 1976 (referred to as the **Barcelona Convention**). It went into effect in 1978 and has a number of protocols, each of which deals with a specific element of environmental protection in the Mediterranean:

1. Dumping Protocol (from ships and planes) – ratified by Israel in 1984.
2. Prevention and Emergency Protocol (pollution from ships and emergency situations) – ratified by Israel in 1978 although the revision in 2002 has not yet been ratified.
3. The Land-based Sources and Activities Protocol which was ratified in 1991 and an amendment to the protocol which was ratified in 2009.
4. Specially Protected Areas and Biological Diversity Protocol which was ratified in 1987.
5. The Offshore Protocol (prevention of pollution from exploration and exploitation) which was signed by Israel in 1994 but has not yet been ratified.

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6 Adler, A. (2000) "Work plan for the Mediterranean," *Sea and Shore 2000*, Ministry of the Environment, Sea and Shore Branch, pp. 55-67 [Hebrew].

7 European Commission (2016) Our Oceans, Seas and Coasts – The Barcelona Convention. [http://ec.europa.eu/environment/marine/international-cooperation/regional-sea-conventions/barcelona-convention/index\\_en.htm](http://ec.europa.eu/environment/marine/international-cooperation/regional-sea-conventions/barcelona-convention/index_en.htm)

6. The Hazardous Waste Protocol with regard to the prevention of cross-border hazardous waste pollution, which has not yet been ratified by Israel.
7. The Protocol on Integrated Coastal Zone Management (ICZM) which was ratified by Israel in 2014.<sup>8,9</sup>

The international **MARPOL 73/78 Convention** for the prevention of pollution from ships was adopted at a conference of the International Maritime Organizations (IMO) in 1973 and was amended in 1978 by means of a protocol (and therefore its name: 73/78). The goals of the convention are to completely halt marine pollution originating from ships and to reduce as much as possible pollution as a result of maritime accidents, which is accomplished by precise regulations that ships must comply with. The regulations relate to all types of pollution and are divided into six appendixes: fuel, chemicals, packaged cargo, sewage, garbage and smokestack emissions. The flag states<sup>10</sup> bear the primary responsibility for enforcement. MARPOL 73/78 imposes building standards on ships, such as double hulls in fuel tankers, and additional standards for maritime equipment that reduce the marine pollution from fuel. In addition, ports are required to provide services to remove and handle oils and sludge.<sup>11,12</sup> Israel ratified the Convention in 1983.<sup>13</sup>

In July 1989, the IMO was asked to develop additional means for preventing pollution from ships and a year later it presented the **International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) 1990** whose goal is to provide a global framework for cooperation in dealing with large-scale marine pollution events or threats of marine pollution. The parties to the Convention are required to prepare plans for handling oil pollution and to equip themselves with the means to deal with pollution events, both on the national level and in cooperation with other countries. The Convention also requires ships, offshore facilities and factories and local

8 European Commission (2016).

9 The Ministry of the Environment (2012). The Barcelona Covenant Protocols. [http://www.sviva.gov.il/subjectsEnv/InternationalRelations/international-Conventions/Marine\\_coast/BarcelonaConvention/Pages/BarcelonaProtocols.aspx](http://www.sviva.gov.il/subjectsEnv/InternationalRelations/international-Conventions/Marine_coast/BarcelonaConvention/Pages/BarcelonaProtocols.aspx) [Hebrew].

10 Flag state: the state whose flag is flown by the ship and in which it is registered.

11 Andel, H. (2000). "MARPOL Convention 73/78," *Sea and Shore 2000*, Ministry of the Environment, Sea and Shore Branch, pp. 80-91. [Hebrew]

12 The International Maritime Organization. 1973. International Convention for the Prevention of Pollution from Ships (MARPOL). [www.tinyurl.com/MARPOL-IMO](http://www.tinyurl.com/MARPOL-IMO).

13 The Ministry of the Environment (2012), Convention for the Prevention of Pollution from Ships (MARPOL). [http://www.sviva.gov.il/subjectsEnv/InternationalRelations/international-Conventions/Marine\\_coast/Pages/MARPOLConvention.aspx](http://www.sviva.gov.il/subjectsEnv/InternationalRelations/international-Conventions/Marine_coast/Pages/MARPOLConvention.aspx) [Hebrew]

authorities along the coast to prepare local emergency plans to deal with oil spills, which will be integrated within the national plans.<sup>14</sup> The Convention was signed by Israel in 1990 and then ratified and went into effect in June 1999.<sup>15</sup>

The **Anti-Fouling Systems (AFS) Convention** prohibits the use of toxic organotin compounds (TBT), an additive to the paints used for antifouling the hulls of ships. This material is slowly and continually released into the water. The material is highly toxic and accumulates in the food chain on the seabed, particularly in enclosed areas such as ports. It has a slow rate of breakdown and therefore the damage is particularly serious.<sup>16</sup> Israel is working to reduce the use of paints containing TBT even though it never ratified the convention and nonetheless enjoys its benefits since modern ships are no longer painted with this material.<sup>17</sup>

The **Ballast Water Management Convention**<sup>18</sup> is a global convention that Israel has not yet signed, though it is complying with its instructions through the activity of the Shipping and Ports Authority in Israel. The convention was written with the goal of minimizing the transferal of marine creatures in ballast water, which is liable to violate the balance of the marine ecology in the location where they are discharged. Therefore, the convention specifies ways of dealing with the problem using methods for replacing the ballast water in mid-ocean or through ballast water treatment or disinfecting before discharge. It should be mentioned that in the absence of appropriate legislation in most countries, these types of systems have not been installed on most ships.<sup>19</sup>

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14 The International Maritime Organization. 2000. International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC). [http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-on-Oil-Pollution-Preparedness,-Response-and-Co-operation-\(OPRC\).aspx](http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-on-Oil-Pollution-Preparedness,-Response-and-Co-operation-(OPRC).aspx)

15 The Ministry of the Environment (2012), "International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC)," [http://www.sviva.gov.il/subjectsEnv/InternationalRelations/international-Conventions/Marine\\_coast/Pages/OPRC\\_Convention.aspx](http://www.sviva.gov.il/subjectsEnv/InternationalRelations/international-Conventions/Marine_coast/Pages/OPRC_Convention.aspx) [Hebrew]

16 The International Maritime Organization. 2001. International Convention on the Control of Harmful Anti-fouling Systems on Ships. [www.tinyurl.com/anti-fouling](http://www.tinyurl.com/anti-fouling)

17 Levinsky, N., R. Amir (2014). "Reduction in the environmental damage from sea transportation – a look at what is happening in Israel," *Ecology and Environment* 5(1), pp. 40-42. [Hebrew]

18 Ballast water is held in the ballast tanks of a ship in order to maintain its stability and thus ensure the safety of its crew and cargo.

19 Levinsky and Amir (2014).

## Prevention of marine pollution in Israel

The body responsible for the prevention of marine pollution in Israel is the **National Unit for Protection of the Marine Environment** (previously, the Sea and Coasts Branch) within the Ministry of the Environment. Its function is to apply and enforce environmental laws in the marine environment. The polluters bear responsibility for the pollution they produce according to the principle of “the polluter pays”. This principle is manifested in fees, levies and fines as specified in the law. Additional bodies with authority to protect the marine environment include the Israel Police, the Ministry of Transportation (the Shipping and Ports Authority), the Green Police in the Ministry of the Environment, the inspectors of the Nature and Parks Authority and the local Municipalities (which have enforcement authority according to the Anti-Littering Law and other environmental laws).

The **Fund for the Prevention of Marine Pollution** was established in 1979 in accordance with the Directive for Prevention of Oil Pollution in the Sea [new version], 5760-1980. The goals of the fund are to centralize the financial resources for fighting marine pollution, prevent the pollution of the sea and coasts, clean them up and supervise them. The Fund’s financial sources are fines imposed on polluters in Israel’s territorial waters; fees charged to ship owners and coastal oil terminals; reimbursement of cleaning expenses according to court verdicts or collected in some other way; financial sanctions and levies on polluting factories (since the middle of the previous decade); funds and allocations from individuals; and the State budget. For these reasons, the Fund’s budget varies and it is difficult to plan or predict its activities and policy.<sup>20</sup>

**Marine pollution from land-based sources** includes any pollution from activity on land. The Land-based Sources and Activities Protocol of the Barcelona Convention is implemented by the Law for the Prevention of Marine Pollution from Land-based Sources, 5768-1988 and its 1990 amendments, as well as the Law for the Prevention of Marine Pollution (dumping of waste), 5763-1983 and additional regulations. According to these laws, it is prohibited to discharge waste into the sea, unless a permit is obtained from the Interministerial Committee that provides dumping and discharge permits. Any individual or factory that discharges directly or indirectly into the sea or is interested in dumping waste at sea from a ship or a plane must

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20 Annual Report 64a (2013). “Ministry of the Environment – Preparedness for the environmental impact of offshore oil and gas drilling,” State Comptroller and the Commissioner for Public Complaints, pp. 463-498. [Hebrew]



obtain a permit for discharging or dumping of waste into the sea from the Committee, which includes representatives of seven government ministries: the Environment – the Chairman (and also the National Unit for Protecting the Marine Environment which manages the committee), Defense, Health, the Economy and Industry, Agriculture, Tourism and Transportation, as well as a representative of the public according to the Law for Representation in Public Bodies Involved in the Protection of the Environment. The committee has the right to grant a permit for discharge into the sea only in the absence of any land-based solution, namely connection to the municipal sewage system, the possibility of recycling, the possibility of treatment at the source, etc. Furthermore, the holder of a discharge permit must install means for treating the discharge before dumping it at sea using the Best Available Technology Economically Achievable (BATEA). In accordance with the 2005 amendment to the Law for the Prevention of Marine Pollution from Land-based Sources 5768-1988, anyone that discharges into the sea will receive a fine calculated on the basis of the amount of pollutant that he discharged and the severity of its impact on the environment, according to the principle of “the polluter pays”.<sup>21</sup>

About 120 factories in various sectors possess permits to discharge into the sea: ocean discharge terminals that intake brine<sup>22</sup> from various factories, such as slaughterhouses, food factories and factories that use ion exchange to purify water; industrial factories, such as refineries, petrochemicals, chemicals, fertilizers and power plants, which discharge wastewater or water that is too salty to be recycled for agricultural irrigation directly into the sea; desalination plants that intake seawater and discharge water with a concentration of salt that is higher than that of seawater; waste treatment plants that discharge treated water (the treatment plant in Herzliya), sludge (the reclamation plant in Rishon Letsion) and Ein Bokek at the Dead Sea; coastal power plants of the Israel Electricity Company which discharge cooling water at temperatures higher than that of the sea; and from time to time permits are granted for discharging ground water in order to construct a buildings. The companies that are involved in exploration and production of oil and gas require a permit in order to discharge cuttings that are created by digging into the seabed and which is mixed with mud from the drilling; formation water which is separated from natural gas in

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21 The Ministry of the Environment (2018), “Preventing marine pollution from land-based sources,” <http://www.sviva.gov.il/subjectsEnv/SeaAndShore/MarinePollutionLand/Pages/default.aspx> [Hebrew]

22 Salty water than cannot be discharged into the sewage system.



a drying process; and byproducts of the activity of offshore facilities that include desalination brine discharge, bilge, cooling water and treated wastewater.<sup>23</sup>

The inspectors of the National Unit for Protection of the Marine Environment carry out periodic inspections in all of the factories that discharge into the sea; they carry out independent sampling in order to examine the quality of the discharge; and they check the compliance of the factory with the quantities specified in the discharge permit, including the installation of treatment equipment as required by the permit.<sup>24</sup>

Nonetheless, there are uncontrolled discharges into the sea (primarily sewage) as the result of malfunctions of the municipal sewage systems or heavy rain that causes flooding in the factories or in the sewage system and as a result sewage flows into the sea by way of the drainage system. Individuals that discharge wastewater or dump waste into the sea illegally are investigated and charged according to law, which provides for punishment of up to one year imprisonment or a fine. In addition, according to amendments passed in 2008, financial sanctions can be imposed on a polluter.

**Solid marine waste**, which is defined in the Barcelona Convention as “solid, persistent, produced or processed material that was disposed of, dumped or abandoned in the marine or coastal environment,” has been recognized as an international problem that transcends national boundaries. The waste that piles up on the shores and accumulates on the seabed or at “ocean garbage patches” located at ocean gyres harms marine creatures, fisheries and the biological diversity of the marine environment. Even after an extended period in the sea, marine waste (and primarily plastic) does not simply disappear, but rather breaks down and penetrates into the food chain and may even end up on our plates and thus may also harm human health. Marine waste is a growing threat to the safety of shipping and to sustainable livelihood and extracts a high price from various business sectors that depend on the sea, such as tourism and leisure, shipping and fishing, coastal power plants, desalination plants and coastal local authorities.<sup>25</sup>

Scientists generally believe that if things continue on their present course, by 2050 there will be more plastic (in terms of weight) in the sea than fish.

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23 The Ministry of the Environment (2018). “Exploration and exploitation of offshore oil and natural gas,” <http://www.sviva.gov.il/subjectsEnv/SeaAndShore/GassOilSea/Pages/default.aspx> [Hebrew].

24 The Ministry of the Environment (2018).

25 Pasternak, G., A. Shafnir, D. Tzvieli, A. Ariel, and R. Amir (2014). “Marine waste on the coast of the Mediterranean,” *Ecology and Environment* 5(1), pp. 25-31. [Hebrew].

In order to reduce marine waste, in 2005 the National Unit for Protection of the Marine Environment within the Ministry of the Environment initiated the **Clean Shores program** whose goal is to minimize the phenomenon of marine waste in Israel and to clear up the coast and the sea in fulfillment of our international obligations and for the benefit of the environment and the public. The program was launched with a budget of NIS 3 million in the 2017 fiscal year and operates along six interconnected axes, where the program's dominant vision is to achieve awareness of the importance of the sea and the coast and that citizens will take personal responsibility for cleaning up the environment:

1. Anti-littering – Cleaning up of the coast line by the coastal local authorities and the Nature and Parks Authority which supports the program and continual monitoring of the level of cleanliness on the coast.
2. Education – The integration of educational programs within the formal and informal education systems for various target audiences.
3. Publicity and public relations – To increase public awareness of the importance of preserving the coast line.
4. Enforcement – Among the users of the coast line and the local authorities that are not fulfilling their obligations according to the Anti-Littering Law, 5764-1984. This enforcement is easier in the case of the local authorities which do not clean up the coast line in their jurisdiction, but is problematic with respect to private individuals, since this usually involves single individuals on a crowded beach, and enforcement would require a large amount of manpower.

During the past year, two components were added to the program, although they have not been fully implemented:

5. Monitoring of marine waste – Monitoring of waste along the coast, on the seabed and in the sea by means of a national monitoring staff and researchers from academia, and in coordination with the regional program that is part of the Barcelona Convention for the reduction of marine waste.
6. Reduction at the source – Obligating the business sector to reduce the use of disposable plastic goods on the beaches.<sup>26</sup> This follows the results of a study carried out of Israel's beaches in 2012 by the Department for Maritime Civilizations in the University of Haifa, which indicated that 90 percent of the waste on Israel's beaches is made of plastic, 55 percent of which is left by bathers; 75 percent are

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26 Ministry of the Environment (2018). The Clean Beach Program. <http://www.sviva.gov.il/subjectsEnv/SeaAndShore/IsraelCoast/cleancoastprogram/Pages/default.aspx> [Hebrew].

items produced or marketed in Israel; and 35 percent are disposable items and packaging.<sup>27</sup>

In addition, the Ministry of the Environment has intensified its efforts to deal with solid waste. The Ministry's policy is to transform garbage from a nuisance into a resource and to reduce the amount of garbage brought to landfills by means of an integrated and sustainable solution, which involves a hierarchy of waste disposal. The policy is based on a number of laws: Collection and Evacuation of Garbage for Recycling, 5753-1993; the Bottle Deposit Law, 5759-1999; the Removal and Recycling of Tires Law, 5777-2007; the Anti-Littering Law, 5754-1984; Anti-Littering Regulations (anti-littering levy), 5747-1987; the Disposal of Packaging Law, 5771-2011<sup>28</sup>; and the Plastic Bags Law, 5777-2017.

**Marine pollution from ocean sources** involves marine pollution from ships and offshore facilities (such as drilling rigs, power plants and coal and oil terminals) and is primarily the result of discharge of oil products due to a malfunction or accident, the discharge of polluted ballast water, byproducts of offshore drilling, pollution from hull paint that contains TBT, sewage and solid waste.

The enforcement and supervision powers are derived from the laws and regulations related to the marine environment:

1. Directive for the Prevention of Marine Oil Pollution [new version], 5740-1980.
2. Regulations for the Prevention of Marine Oil Pollution (implementation of the Convention), 5747-1987.
3. The Prevention of Marine Pollution Law (dumping of waste), 5743-1983 and also its regulations from 1984.
4. Port Regulations (loading and unloading of oil), 5736-1975.
5. The Port Regulations (dumping of garbage from ships), 5770-2010.
6. The Anti-Littering Law, 5744-1984.

The National Unit for Protecting the Marine Environment, with the assistance of ship inspectors from the Shipping and Ports Authority, are carrying out regular and systematic inspections of ships, during which they check the ships' compliance with international standards for the prevention of marine pollution. Additional activities to

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27 Pasternak, G., D. Zviely, C.A. Ribic, A. Ariel, E. Spanier (2017). Sources, composition and spatial distribution of marine debris along the Mediterranean coast of Israel. *Mar. Pollut. Bull.* 114, 1036-1045. <https://doi.org/10.1016/j.marpolbul.2016.11.023>.

28 Pasternak et al. (2014)

reduce marine oil pollution include licensing and inspections of ports and wharves, aerial patrols of the sea and along the coast and maritime patrols by inspection ships at problematic locations, diving inspections and taking laboratory samples from problematic locations in order to check compliance with regulations and the law. Israel has permission to use the long-distance sensing surveillance systems of EU satellites, which make it possible to identify polluters and pollution in almost real time.<sup>29</sup>

Although Israel has not signed the **AFS Covenant**, the Ministry of the Environment led an initiative during the previous decade to end the use of paints containing TBT. This policy includes prohibiting the sale and use of these paints as part of the business licenses of wharves and shipyards, the addition of paints containing TBT to the list of prohibited substances for import, according to an import-export directive and according to the tariff regulations, and the prohibition of possessing more than 1 kilogram of paint containing TBT or in a concentration of 3 percent or more, which went into effect during 2009.<sup>30</sup>

**Handling of marine oil spills** is required following a serious oil spill in the sea or on the coast. A large oil spill is liable to cause serious damage to the environment and the economy.

As part of the **International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) 1990**, an agreement was signed in May 2018 for an emergency sub-regional trilateral emergency plan between Israel, Greece and Cyprus (as part of the emergency protocol of the Barcelona Convention and the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC)). Each country that is a party to the agreement is committed to establish response centers for dealing with oil spills that are roughly estimated to be between 4000 and 6000 tons, to outfit them with appropriate equipment, to train response teams and to prepare a national emergency plan. In situations where the affected country is not able to handle the oil spill on its own or if the spill may affect the coasts of more than one country, the affected country can request assistance from its neighbors, in which case the cleanup will be carried out based on a combined effort and cooperation in the field. In such cases, the maritime command and the

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29 Levinsky and Amir (2014).

30 Ministry of the Environment (2017). "Preventing pollution from ship hull paint – paint that contains TBT." [http://www.sviva.gov.il/subjectsEnv/SeaAndShore/Sea\\_Pollution\\_sea/MarinePollutionVessels/Pages/MarinePollutionTBT.aspx](http://www.sviva.gov.il/subjectsEnv/SeaAndShore/Sea_Pollution_sea/MarinePollutionVessels/Pages/MarinePollutionTBT.aspx) [Hebrew]

responsibility for the efforts will be in the hands of the country where the cleanup is taking place.<sup>31</sup>

**The Regional Cooperation Plan for Oil Spills in the Gulf of Eilat (Aqaba) between Israel, Jordan and Egypt** is based on the assumption that due to the close geographical proximity between the countries in this region, oil spills will quickly spread from the source to the territorial waters and coasts of the neighboring countries. As an appendix to the peace treaty with Jordan in 1995, a regional cooperation agreement was signed for preparedness, response and cooperation in oil spill events, which includes Egypt, Jordan and Israel. Unfortunately, Egypt is not currently cooperating in the implementation of this agreement. The level of equipment and preparedness in each country was defined so as to provide an efficient response to oil spills of up to about 200 tons of oil. As part of the agreement, two special boats (Sviva 2) for fighting oil spills were acquired, in parallel to their Jordanian sister ship “Hamza1”, and they operate as part of an emergency framework that encompasses both sides of the gulf.<sup>32</sup>

In 1998, the government decided to establish an interministerial steering committee chaired by the Ministry of the Environment, which is responsible for preparing the **National Plan for Dealing with Oil Pollution**, and to anchor it in law.<sup>33</sup> After about ten years, in 2008, the government approved the principles of the National Plan for the Prevention of Marine Oil Pollution, which is an organizational framework that brings together the various organizations that respond to an oil spill event that is liable to cause marine pollution along Israel's coasts in the Mediterranean and the Gulf of Eilat. The National Unit for Protection of the Marine Environment developed and wrote the plan, which is based on preparedness in terms of equipment, manpower and continual readiness of the bodies involved in marine oil pollution, which share the responsibility. The Ministry of the Environment is the national body that guides, assists and supervises an event at every stage of the plan. The goals of the plan are to coordinate the actions of the entire network, including readiness and response

31 Ministry of the Environment (2018). “A trilateral Israel-Greece-Cyprus agreement has been signed for preparedness and response to oil spills.” <http://www.sviva.gov.il/InfoServices/NewsAndEvents/MessageDoverAndNews/Pages/2018/may2018/Israel-Greece-Cyprus-signed-sea-pollution-Tripartite-Agreement.aspx> <http://www.sviva.gov.il/subjectsEnv/SeaAndShore/OilPollution/RegionalCooperation/Pages/Default.aspx> [Hebrew].

32 Ministry of the Environment (2012). “International cooperation in the Gulf of Eilat.” <http://www.sviva.gov.il/subjectsEnv/SeaAndShore/OilPollution/RegionalCooperation/Pages/RegionalCooperationEilat.aspx> [Hebrew].

33 Decision of the Ministerial Committee on behalf of the government (decision 6 on March 2, 1998).

to oil pollution events, mapping of areas sensitive to marine pollution along the coast and foci of risk, establishing policy to handle a marine pollution event, and specifying the methods and means for dealing with a serious marine pollution event while coordinating between the relevant bodies. The National Unit for the Protection of the Marine Environment brings together the means for dealing with marine oil pollution events, which provide the ability to block, pump and concentrate the oil until its evacuation to a designated site for treatment.<sup>34</sup>

Offshore facilities and coastal local authorities were required to prepare local plans for readiness and response to pollution events in their jurisdiction. The formulation of these plans was paid for by the Fund for the Prevention of Marine Pollution. Marine pollution exercises are held each year on the national level by the Ministry of the Environment with the participation of all the relevant bodies and on the local level in factories and local authorities. During a marine pollution event, the inspectors of the National Unit for the Protection of the Marine Environment provide professional guidance to those responsible at the site, with the goal of restoring the situation to what it was previously and minimizing the damage to the environment. If there is a suspicion of negligence, a criminal investigation is initiated in order to decide whether reasonable precautions were taken to prevent the event.

According to the government decision that approved the National Plan for the Prevention of Marine Pollution, the Ministry of the Environment was to verify that by January 2014 the owners of the fuel conveyance infrastructures and the Ministry of Defense had completed their acquisitions for the handling of marine oil pollution, with a total cost of about NIS 18 million and a total investment of about NIS 15 million from the budget of the Fund for the Prevention of Marine Pollution to finance maintenance costs.<sup>35</sup> Petroleum Energy and Infrastructures Ltd., the Israel Electricity Company and the Trans-Israel Pipeline Company have acquired most of the required equipment and the Israeli navy has announced that it has also completed its acquisitions. In contrast, not all the local councils have acquired the equipment to deal with marine pollution, despite the RFQ of the Fund for the Prevention of Marine Pollution for the acquisition of equipment to handle marine oil pollution events.

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34 Ministry of the Environment (2015). "The National Plan for the Handling of Marine Oil Pollution." <http://www.sviva.gov.il/subjectsEnv/SeaAndShore/OilPollution/Pages/NationalPlan.aspx> [Hebrew].

35 Ministry of the Environment (2013).

Furthermore, the Ministry of the Environment is meant to acquire two designated ships for fighting pollution and an inspection ship in order to complete the acquisition of equipment to fight marine oil pollution, to build stations for the prevention of marine pollution and to add 10 employees for dealing with marine pollution events and supervision. About NIS 15 million from the budget of the Fund for the Prevention of Marine Pollution and an additional budget from the Ministry of the Environment (if the Fund's budget is insufficient) were allocated to finance the acquisition program. As a result of the offshore oil and gas activity, the Ministry of the Environment has since the end of 2010 requested a one-time allocation from the Ministry of Finance in the amount of NIS 22 million, an allocation of 11 employees and an annual budget of NIS 7 million to finance maintenance activities and additional manpower positions.<sup>36</sup> In actuality, only now has the Ministry of the Environment began acquiring equipment according to the plan while the additional budget and employees requested in 2010 have not yet been received.

### **Conclusion and recommendations**

Marine pollution is a cross-border problem that needs to be dealt with through, among other means, regional cooperation. During the past four decades, Israel has adopted most of the international conventions for reducing marine pollution and has passed laws and regulations accordingly. Two of the main causes of pollution in recent years have been marine waste (and primarily disposable plastic products) and the potential for oil spills as a result of oil and gas drilling or an accident / malfunction in the shipping and ports sector.

Since a significant part of the problem of marine waste is the result of overuse of disposable products (on land), their use should be limited (reduction at the source) through appropriate legislation, as well as by increasing the scope of recycling. The success of the bottle deposit and plastic bags laws is an indication that such legislation would be effective.

As of the end of 2018 and 20 years after the relevant government decision (no. 6 from March 2, 1998), the National Plan for Dealing with Marine Oil Pollution has not yet been approved, nor has it been updated as a result of the oil and gas discoveries during the past decade. Furthermore, the preparations for handling an oil spill are not yet complete, despite the increased risk. The National Plan for Dealing with Marine Oil Pollution should be made into law and it should be updated to take into account

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<sup>36</sup> Ministry of the Environment (2013).



the additional risk created by the natural gas discoveries. Similarly, additional budget should be immediately approved for the relevant organizations to acquire the necessary equipment for an appropriate response to a potential oil spill off the coast of Israel.



Figure 1: Plastic waste on the shores of Israel (Ministry of Environmental Protection)