

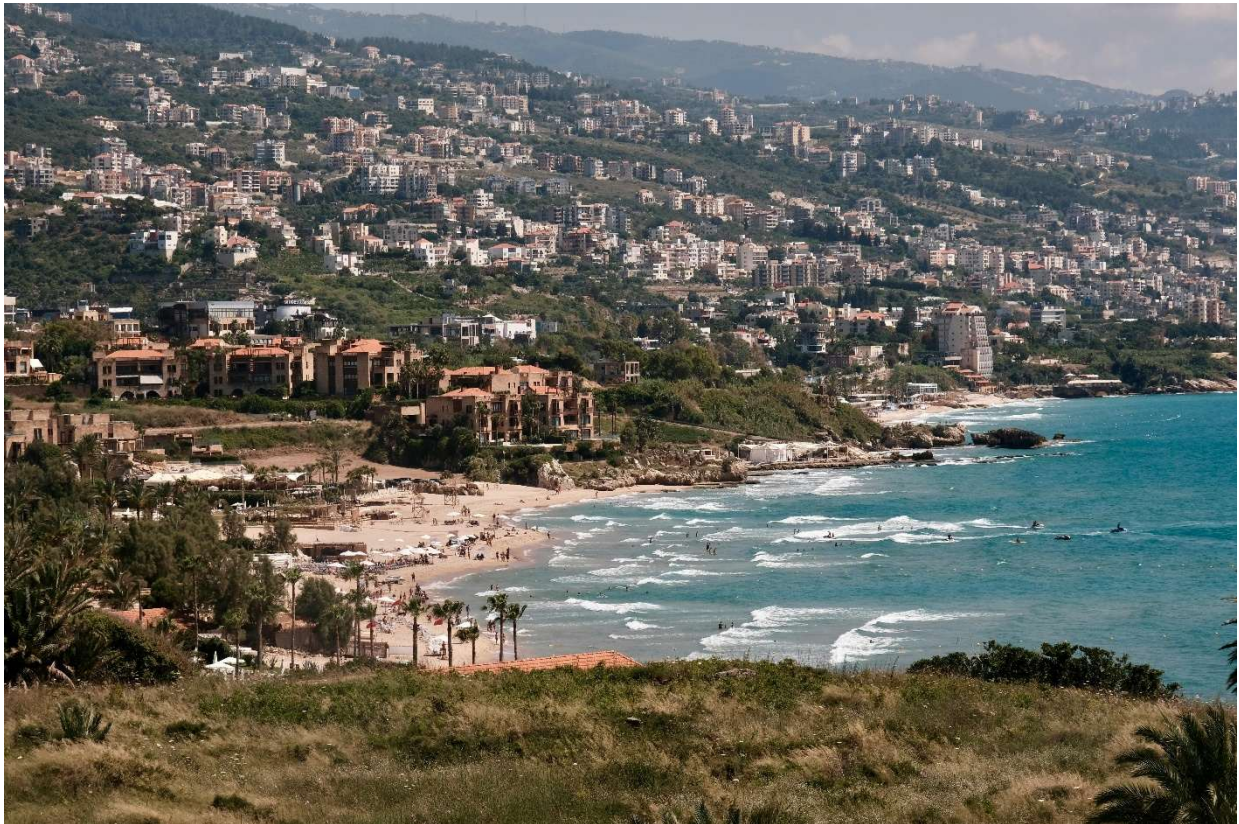
PAP/RAC of UNEP/MAP

Raising awareness about ICZM and Lebanon's coastal areas - *Environment, Legislation, Society, and Marine Spatial Planning*

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Environment

Lebanon's sea is a “marine biodiversity hotspot” that must be protected



Source: Pexels

With around 1500 marine species and hundreds under threat of extinction, Lebanese coastlines and their waters should get better attention and enhanced protection. **Andre Kammoun**, a researcher at the Institute of Environment at the University of Balamand and a team member of the Integrated Coastal Zone Management (ICZM) project that aims at updating the ICZM draft law and strategy, explains why Lebanon is such a biodiversity hotspot, what the main threats are and how to protect its biodiversity.

“In the last 20 years we gained a lot of knowledge about marine biodiversity in Lebanon, a sea hosting a great number of species. However, many of these species are under threat, so we need to protect and preserve them, and therefore, protect their natural environment”, says Andre Kammoun.

Knowledge is unfortunately not always followed by action. *“Nowadays, some people have the knowledge but do not act, some decide to act as in the case of some environmental*

NGOs, while some do not have the knowledge and refuse to learn, which is leading to the many problems and challenges we are facing.”

Among the problems/challenges referred to by the expert are the investments made along the coast to build resorts or other types of constructions, thus destroying the natural habitats on the shore. Another major factor affecting marine biodiversity is pollution on the coast. *“In many places, the water near the shore is discoloured because of all the waste thrown into it, while it becomes blue in deeper seas. Solid waste for example is a major problem in estuaries and shallow areas.”*

As for fisheries, they are affected by illegal fishing practices such as the use of dynamite or small size nets (that capture even the youngest fish) and by the absence of proper management of the sector by national authorities. Invasive species coming from the Red Sea through the Suez Canal, such as puffer fish species, are also becoming a common problem in Lebanese waters.

On an administrative level, control over destructive practices on the coast is still very weak and not taken seriously.

Asked about the number of species threatened, Andre Kammoun says we have around 1500 marine species in our waters such as plankton, fish, cetaceans, amphibians, reptiles, birds, turtles etc., with many of them requiring special attention. *“When we talk about protecting marine biodiversity, it means protecting the sea but also the shorelines”*, he adds.

One of those iconic threatened species that were protected through plans and now their numbers have recovered are marine turtles. In Tyre (South Lebanon), their habitat is protected, and nests are still seen every year, while in Akkar (far north), where the lack of knowledge and protection has most likely led to their disappearance from these beaches.

Another example given by Mr. Kammoun is that of vermetid platforms. These are biogenic reefs formed by the accumulation and cementation of vermetid snail shells, found particularly in the Mediterranean Sea, considered as being on the frontline for protection against sea storms and habitats for spawning and for juveniles. As those natural platforms are disappearing, and storms are projected to increase due to climate change, the illegal and legal encroachments that lead to their destruction will be the first impacted.

Many challenges ahead due to global warming

Climate change is the major factor that will affect the future of the coastline, and its consequences are already visible. According to **Antoine Waked**, climate change specialist and one of the experts working on the draft law and strategy, scientific findings show that global warming is already visible in the Mediterranean in general, and Lebanon in particular, and its projected effects are devastating.

Some of these consequences, summarized by Antoine Waked, include an increase in atmospheric greenhouse gases (responsible of global warming) by 6% yearly since 1994, a sea level rise by 1.4 mm per year during the 20th century, an increase of 1.6 to 2.2 degrees of the atmospheric and sea-surface temperature by 2050-2100, compared to the reference period of 1986-2020, a decrease of the precipitation level trend for the period of 1950-2020 (0.53 mm per decade), as well as an expected increase in droughts and heatwaves.

On the Lebanese coast, Antoine Waked raises the issues of coastal erosion that could lead to a loss of beaches and habitats, the degradation of infrastructures as a result of coastal flooding and inundation, and losses in agriculture areas and crop yields. There will also be problems linked to access to fresh water for drinking and irrigation, and to the salinization of coastal aquifers (due to the intrusion of seawater in underground fresh water), knowing that aquifers are Lebanon's main water resources. On a social level, there will be increased demand for cooling and drinking water due to high temperatures.

An inclusive strategy covering many sectors

To address all those issues, Andre Kammoun believes enforcing laws is essential, although the existing laws don't always cover the whole spectrum of environmental protection. *"The existing laws, notably laws 444 (environmental code) and 130 (protected areas), do not take into consideration the preservation of environmental marine species, which leads to the loss of species that flee towards other shores",* he says. *"Lebanese waters are also known to be a migration route for Cetaceans – whales and dolphins – so we need to protect them from dangers such as being hit by boats, and to protect their habitats",* he adds.

According to the scientist, in order to ensure an efficient protection of marine biodiversity, strategies are needed in different sectors, such as organizing the maritime public domain for example. *"We need an integrated coastal zone management based on planning and on actionable recommendations that are adapted to the Lebanese situation and geography, and that could be enforced by the government with the support of NGOs and the academic sector",* he says, and the planning should take climate change effects into consideration. One of those measures, according to Antoine Waked, is to introduce a buffer zone on the shoreline where no construction is allowed. For a better protection of coastal habitats, *"the creation of a network of coastal marine reserves is critical for the rehabilitation and preservation of more than 30 remarkable sites, among them sandy beaches, a certain number of rocks and cliffs, freshwater springs, etc."*

The climate change specialist thinks that guidelines, policies and recommendations should be issued by relevant authorities in order to move the sources of pollution away from the shoreline, but also to use engineering techniques along the coast (sea walls, dykes...) to protect it from high waters and sea storms and limit the impacts of erosion.

To combat coastal flooding and inundation, sea water intrusion and impact on coastal activities, Antoine Waked recommends measures such as identifying vulnerable sites, reinforcing data collection and cooperation between relevant institutions, developing awareness and alternative solutions when possible, introducing early warning systems, and developing financing mechanisms to help the most vulnerable populations when needed.

Legislation

The Lebanese coast soon to have its own integrated management: a draft law and strategy in the making



Source: Unsplash

After years of lack of effective management, Lebanon is in the process of updating both its draft law and strategy on coastal management in conformity with the Protocol on Integrated Coastal Zone Management (ICZM) in the Mediterranean (adopted in 2008 and ratified by Lebanon in 2017). Those documents were first developed in Lebanon in 2015 but there was no follow-up afterwards. The current update is done by a group of experts in collaboration with **PAP/RAC**, a UN Mediterranean agency, and with the Lebanese ministry of Environment (MOE), national ICZM focal point.

The draft strategy and law are the result of a long process, one that started over 20 years ago but was unsuccessful until now, explains **Manal Nader**, expert in marine biology, director of the Institute of Environment in the University of Balamand and head of this project. Nevertheless, it appears that Lebanese experts have learned from past mistakes and unfinished experiences, and there is hope that the Lebanese coastline will soon benefit from a specific strategy and law.

The coast, “recipient of much of human-generated waste”

Regulating coastal development and use is a must everywhere in the world. *“Throughout history, people have lived mostly in coastal areas, and most economic*

sectors were established near the coastline”, says Manal Nader. Accessibility to water resources, but also trade by sea, more efficient than trade by land and air, have drawn people to the coast, as well as food security, the most important sources of protein in the world being marine biological products.

“We realized that we were destroying these sensitive habitats that constitute the source of such proteins on top of affecting the well-being of coastal communities through pollution, urban sprawl, sea filling (creating new land by filling in submerged areas of the sea), solid waste generation, waste water, and mass tourism amongst many other negative impacts... this is what made the issue of managing coastlines so urgent, because they became the recipients of all human waste”, says Manal Nader.

One other reason for lack of effective management on the coast is the constant conflict between socio-economic sectors: industry aiming at growing at the expense of agriculture, farmers weary of residential areas expansion, residents wanting to expand while at the same time remaining at a distance from industrial, touristic and agriculture areas...

These conflicts shaped the idea of coastal management, that started with scientists, notes Manal Nader, and was mainly focused on environmental conservation and protection of ecosystems. *“But as we moved along, we learned that conservation is but one component of the coastal management. There are many sectors thriving around Mediterranean coastlines such as tourism, urbanization expansion, industry, agriculture, trade... all located in this narrow strip in Lebanon. With time, the idea of coastal management shifted from a pure conservation approach to the management of development across sectors.”*

He adds: *“Making this shift from conservation to development doesn’t mean environmental protection is not important, it remains the cornerstone of what we do. But we will need to merge it with the well-being of societies and coastal communities.”*

A long road ahead

To face the challenges resulting from such intensity in economic and touristic activities, the Mediterranean has been a pioneer in managing basins and solving problems between the 23 countries around this semi-closed sea. In Lebanon, the process towards coastal management through a strategy and a law has been long and fraught with obstacles. According to Manal Nader, it started in the early 2000s. Coastal knowledge at the time was much more limited, and the political situation still very unstable after a 15-year war that ended in 1990. A first attempts at a law and a strategy were lacking a shared vision encompassing different sectors.

The second attempt was in 2014-2015. *“There was a project called Promare funded by the European Union, our Institute of the Environment at Balamand was subcontracted by the Ministry of Environment to develop a draft law and strategy,*

based on the information gathered in the 2000s”, he says. The new approach was a management approach.

This work in 2015 didn’t lead to the passing of a new law, but was a significant step forward nevertheless. *“The hurdles met when advocating for new laws meant that any draft text had to be sent to many ministries for comments, then it had to be discussed by the government... in 2015, a review by one ministry stated that the existing legislations were enough to protect the coastline, while other ministries did not even make the effort to respond”, he explains. “On the other hand, every time a new government was appointed, we had to go through the process all over again.”*

The current project that is updating the strategy and the law, under the auspices of the ICZM protocol, and with a number of experts in all related fields and in full collaboration with the MOE, is promising due to all the accumulated knowledge and the shift in understanding the importance of coastal management. *“The idea at the core of ICZM is that all sectors have to compromise for the common interest”, says Manal Nader.*

*“The updated draft law reflects the objectives present in article 5 of the ICZM protocol of 2008”, explains **Josiane Yazbeck**, expert in environmental law and involved in the draft law and strategy writing. “The law mentions, in its objectives, that the coastal zone is an integral part of Lebanon’s common heritage, as well as the protection of the coastal zone, with the objective to ensure the preservation of natural sites and guarantee the safeguarding of marine biodiversity and water resources”, she says.*

New issues will take into account the different scenarios related to climate change and the carrying capacity of the Lebanese coast, adds the expert in environmental law.

Open beaches from South to North...

In the process of preparing these new drafts, the expert team also accumulated a more profound and global knowledge of Lebanese legislation pertaining to coastal management, which, in many cases, overlap to the detriment of coastal ecosystem health. *“The adoption of a new law means that some of the existing legislation that might be in contradiction with the new measures should be annulled”, says Josiane Yazbeck. On the other hand, some activities are not regulated at all currently on the Lebanese coast, such as some recreational activities, industries and power plants. “There will be penalties and fines, taking into consideration the ones already present in other laws such as the decree on environmental impact assessment (EIA) and strategic impact assessment (SEA) for example”, she adds.*

At this stage, experts are in the process of writing the articles of the new law and developing the new strategy that will be further discussed through participatory approaches with all concerned stakeholders, in targeted workshops and meetings.

After the work on the draft law and strategy is over, the battle won't be won yet. *"All concerned will then have to advocate for it with the decision makers, and convince them that it is beneficial for the country and for the economic well-being of coastal communities in particular and the Lebanese population in general, as well as being crucial for sustaining coastal tourism and resources for generations to come"*, says Manal Nader.

One of the main reforms would be to acknowledge that the maritime public domain belongs to the whole Lebanese population and is not to be privatized, that encroachments (unauthorized or illegal occupation or use of the maritime public domain such as blocking access to the shore, seafilling, privatization activities etc...) should be penalized and that, according to applicable laws, a Lebanese citizen should be able to walk from South to North on the shore without any impediment. A dream soon to come true?

Society

A new strategy and law to reverse a long history of restrictive access to the coast



Source: Unsplash

The Lebanese Mediterranean coast stretches over 200 kilometers, yet accessing the beach freely is limited to very rare spots. Since the Lebanese war of 1975-1990, there were many illegal encroachments on the coast, and this practice hasn't stopped with the return of peace and throughout all the crises in Lebanon.

This situation has deprived the Lebanese people from their natural right to access the beach. *“The encroachments on large portions of the Lebanese coast had significant social consequences for the population. It has restricted public access to the sea, historically a vital space for recreation, cultural practices, and livelihood activities such as fishing, especially for low-income communities”*, says **Karen Nawwar**, specialist in environment and social sciences.

This loss of access has deepened social inequalities, privileging private investors while marginalizing local residents, she adds. *“Traditional coastal communities have faced displacement or disruption due to rising land values and environmental degradation. Furthermore, public trust in state institutions has deteriorated, as many perceive coastal encroachments as a result of weak governance, corruption, and lack of enforcement of environmental and planning laws, leading to growing public frustration and activism around the right to access and protect coastal resources.”*

For years, the Lebanese authorities have failed to act. **Josiane Yazbeck**, expert in environmental law, explains why. *“This sector has always been marked by corruption. Many influential people are involved in investments along the shore, and they are not motivated to settle this issue. On the other hand, since 2017, many illegal settlements on the coast were legalized, notably all that were built before 1994. And even when authorities get their hands exceptionally on illegal settlements, they are more interested in investment than in conservation. We have never seen an illegal building being demolished to this day.”*

Environmental degradation: nearly 6% of the GDP

This lack of effective management of the coast and illegal occupation of the shores comes at a high cost. *“The cost of coastal environmental degradation was equivalent to 5.9% of GDP in 2023. By governorate, Mount Lebanon (3%) followed by Northern Lebanon (1.1%) bear the brunt of the degradation. By category, water bodies (2.5%) followed by ambient air (1.5%) are the most impacted by pollution and degradation”*, explains **Fadi Doumani**, environmental economist and independent consultant.

The illegal occupation of large portions of the coast also has a huge impact on the touristic sector. *“In economics, it is called rent seeking: in other words, some economic actors are infringing the law of the land by encroaching on the public domain leading to the appropriation of access to the coast/sea and the capturing of some resources, including ecosystem services”*, he says.

Advocating for environmental justice needs effective tools. In the current situation, Josiane Yazbeck believes relying on Environmental impact assessment (EIA) and Strategic Environmental Assessment (SEA, for larger projects) – to be reviewed by the Ministry of Environment – could help preventing new encroachments on the coast. *“Of course, the decree on EIA and SEA has its flaws, but applied strictly, it could prevent more damage to the coast”*, she says.

All the coast is a “sensitive area”

To reverse the situation, the draft law prepared by a team of experts in the frame of the new ICZM (Integrated Coastal Zone Management) project, in collaboration with PAP/RAC, a United Nations Mediterranean agency, will be a precious ally. *“A new ICZM law and strategy would be a game-changer for Lebanon by introducing a unified, transparent, and sustainable framework to manage the coastline. It would clearly define the public maritime domain, prevent illegal encroachments, integrate environmental, social, and economic priorities, and promote resilience to climate change”*, according to Karen Nawwar, a member of the team working on the ICZM project.

Josiane Yazbeck, one of the writers of this draft law, mentions a new notion that is to be included in the text. *“In the draft, we consider the entirety of the coast as a sensitive area, and not just limited public domain, which would change the general perception on coastal management”*, she specifies.

Economic and financial measures will also be included in the overall coastal management, according to Fadi Doumani, himself a member of this team. *“After defining land and maritime use and developing or updating the land and maritime plans, the shoreline could be managed in a sustainable and resilient manner, following the implication of all relevant sectors and all stakeholders (public sector, private sector, communities, etc.). At this stage, policy instruments that include regulatory, fiscal, market-based and moral persuasion instruments could be used to change behavior and reach sustainable and resilient management of the coastal zone and the maritime environment.”*

A “shared public space”

In this process, it is necessary to involve the public. *“To bring shoreline protection into the public debate, it is essential to start with raising awareness about legal rights, supporting grassroots movements, and involving youth, universities, and civil society, to advocate and apply pressure for reclaiming the coast as a shared public space”*, says Karen Nawwar.

This cause has been championed by civil society for years. *“Civil society monitors and acts as a warning system, documenting environmental damage and regulatory violations”*, advocates Clara el-Khoury, president of the Lebanese Coastal Forum.

She adds: *“Civil society is able to mobilize and raise awareness to create a collective consciousness, and to put pressure on local and political authorities to adopt more protective policies - just as it can take legal action against people or companies that harm the environment.”*

Despite the gloomy picture of the coastal management in Lebanon, Clara el-Khoury, who is also member of the ICZM team, recalls quite a few achievements over the years. *“Civil society in Lebanon has developed expertise in this field, especially in networking and coordination between the various local players, creating coalitions. Lebanese Coastal Forum aims at strengthening this coordination.”*

She believes *“the ICZM law will be a valuable tool for strengthening civil society action in Lebanon”*.

Interview/explainer

Marine Spatial Planning: the protection of coastal environment in the core of development



Source: Pexels

Marine Spatial Planning (MSP) is a critical modern-day concept in coastal management, but what does it really mean? **Serge Yazigi**, senior expert in Development and Planning and university professor, and **Manal Nader**, expert in Marine Biology and Aquaculture and Director of the Institute of Environment at the University of Balamand¹, explain why this tool is so efficient in organizing human activities while preserving natural habitats and why it is still a slow – if not inexistent – process in Lebanon.

What is Marine Spatial Planning and why is it important?

SY and MN: MSP is a process that organizes human activities in coastal and marine areas and interactions among its uses. Like land use planning, its goal is to balance demands for sustainable development of the coast with the need to protect the coastal and marine ecosystems.

MSP is a science-based approach that organizes how marine space is used, ensuring that economic activities like fishing, tourism, transportation and energy development do not come at the expense of the natural environment and its biodiversity. Note that

¹ **Manal Nader is head of the project reviewing the national Lebanese ICZM draft law and strategy for Lebanon in conformity with the ICZM Protocol and in collaboration with PAP/RAC and the MOE as a focal point, while Serge Yazigi is part of the team of experts.*

by 'coastal', we mean the terrestrial environment adjacent to the shore and the territorial waters of the country.

What has been done to this day on the Lebanese shores?

MSP has been somewhat of a slow, if not a non-existent process in Lebanon. Nevertheless, in addition to the Abbassiyeh Nature Reserve (South-Lebanon, Tyre district) that has been recently declared, and based on the 2012 Marine Protected Area Strategy of the Lebanese Ministry of Environment, certain protected areas have been established along the coast, including the Tyre Coast Nature Reserve in South-Lebanon, and the Palm Islands Nature Reserve in the North of the country.

Marine biodiversity on the Lebanese shores has also been studied and occasionally mapped by academic institutions, research centers and national and international NGOs for potential protection. Similarly, local NGOs and environmental groups have created initiatives that help to keep the shores clean and to protect marine life and the environment.

Moreover, Lebanon is benefiting from the comprehensive guidance developed by the Intergovernmental Oceanographic Commission (IOC) to adopt MSP, including the 2021 "MSP global International Guide on Marine/Maritime Spatial Planning." This guide outlines best practices, implementation phases, and monitoring strategies, and it encourages stakeholder engagement and transboundary cooperation—key aspects for Lebanon given its geopolitical and ecological context.

Currently, the Marine and Coastal Resources Program at the Institute of the Environment, University of Balamand (MCR-IOE-UOB) is developing the first Marine and Coastal Baseline Map to be followed by an MSP within the context of a project funded by PAP/RAC (Mediterranean UN Agency). This baseline map includes all available and accessible information that allows visualization of usages of coastal areas and territorial waters aiming to better inform management approaches and conservation efforts.

How can MSP help protect natural habitats, fisheries and other coastal resources from threats?

As Lebanon faces increasing pressures on its coastal ecosystems, experts are turning to MSP as a powerful tool to protect the country's coastal resources. It is not an end by itself but it is meant to lead to practical and sustainable initiatives. It allows identifying and designating protection areas through limiting destructive human activities and development. It also assists in combating illegal fishing through monitoring requirements and allocating specific zones (where fishing is allowed) in non-critical areas. MSP is also a tool for climate resilience, as it protects natural habitats and biodiversity which in turn buffer against storms and land erosion.

For Lebanon, it could mean:

- Fully protecting the Maritime Public Domain (MPD) including rocky shores and their terraces, pebble and sandy beaches, and sensitive habitats especially in shallow areas.
- Supporting small-scale fisheries by identifying and protecting spawning and nursery grounds, and by reserving areas for sustainable practices.
- Reducing pollution by regulating industrial and wastewater discharge points.
- Enhancing climate resilience by preserving coastal wetlands and natural buffers.

In summary, by clearly defining who can do what and where, MSP helps reduce conflicts and ensures that marine resources are used wisely today and for generations to come.

What role would MSP play in the case of oil and gas exploration?

MSP can serve multiple purposes to balance development and exploration with environmental protection and marine activities. Firstly, it is a crucial tool that balances energy goals with environmental protection. It assists in identifying the suitable areas for exploration in parallel to exclusion zones that contain rich biodiversity and key fishing sites, therefore safeguarding, amongst others, ecologically sensitive areas and fishing grounds.

It can also prevent oil spills by requiring strict environmental assessments and emergency plans prior to oil exploration. It also promotes sustainable resource management by providing recommendations for the process.

By mapping marine uses and risks, such planning minimizes conflicts between energy projects and coastal communities while at the same time ensuring that infrastructure—such as pipelines and rigs—are deployed with minimal ecological disruption, and that emergency response plans are integrated into national marine strategies.

In short, MSP offers Lebanon a way to pursue offshore energy development responsibly, ensuring that economic gains do not come at the cost of marine ecosystem health and associated resources.

What are your recommendations for future actions?

It is strongly recommended to create a national MSP framework, mapping marine ecosystems and human activities, and involving local communities in decision-making while at the same time integrating such an MSP with climate and coastal policies.

In addition, it would be beneficial to update the Marine Protected Area Strategy of 2012 and include it in master plans and national initiatives. Developing a national MSP framework through a collaboration of ministries and NGOs (both local and international) can offer new insights and funding for further progress.

Legal action support, including implementing and enforcing coastal protection laws and enforcing MSP integration into oil and gas licensing conditions, are necessary. Expanding MPAs to include various critical habitats in the coastal zone of Lebanon can increase the protection of biodiversity, provide grounds for sustainable fisheries, support coastal livelihoods, and manage offshore energy responsibly —therefore securing a healthier future for our cherished Mediterranean Sea.