MedDialogues +2030

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BUILDING REAL MARINE PROTECTION IN THE MEDITERRANEAN

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Yassine Ramzi Sghaier, a marine biodiversity expert at the Regional Activity Centre for Specially Protected Areas (SPA/RAC) of the Mediterranean Action Plan, was the guest speaker at the third session of the Med Dialogues +2030 series, held on 5 November 2025. In his conversation with Laura Secorun, moderator of the 2025 edition, he discussed how to protect the biodiversity of the Mediterranean, particularly the Posidonia seagrass meadows, considered the lungs of Mare Nostrum, through the establishment of marine protected areas and participatory science.

Originally from Sousse, Tunisia, Yassine Ramzi Sghaier grew up with the Mediterranean as both his horizon and playground. His fascination with the seabed and his desire to discover and protect this sometimes mysterious marine world were born from Sunday afternoons spent watching Commander Cousteau's television programmes. Captivated by these tales of exploration, he decided to follow in Cousteau's footsteps and, instead of buying the mobile phone his father had offered him money for, used it to take his first diving lesson. From that moment on, one thing led to another, and the protection of the sea became his professional calling. "*I never thought I'd end up doing this as a scientific researcher*," he admits. "*I was just a young man who spent his days fishing and swimming*."

BARCELONA CONVENTION

Legal Framework and Origins

Adopted in 1976 and amended in 1995, the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean—known as the Barcelona Convention—was the first regional seas agreement under the United Nations Environment Programme (UNEP). It established the Mediterranean Action Plan (UNEP/MAP), a pioneering model of regional environmental governance that inspired similar frameworks worldwide.

Objectives and Scope

The Convention and its seven protocols form the legal basis for cooperation among 21 Mediterranean States and the European Union to prevent pollution, protect biodiversity, and promote sustainable coastal and marine development. A key goal is to achieve the Good Environmental Status (GES) of the Mediterranean, aligned with the Sustainable Development Goals (SDGs) and the global biodiversity framework.

Implementation and Results

Implementation is coordinated through the UNEP/MAP system and several Regional Activity Centres (RACs) that address themes such as pollution control, biodiversity, and coastal management. Achievements include 39 Specially Protected Areas of Mediterranean Importance (SPAMIs), national coastal management strategies, and the first legally binding regional plan on marine litter.

50 years of Legacy

In 2025, the Contracting Parties celebrate 50 years of cooperation under the UNEP/MAP–Barcelona Convention system. Despite progress, the Mediterranean remains under pressure from climate change, pollution, and overexploitation, confirming the Convention's role as a cornerstone of regional environmental governance.

More information at **www.unep.org/unepmap**

Posidonia MEADOWS: THE LUNGS OF THE MEDITERRANEAN

It was through diving that he first discovered *Posidonia* meadows—those extraordinary underwater ecosystems particularly abundant off the Tunisian coast (between 30 and 40% of the total Mediterranean population lies between Tunisia and Libya, especially in the Gulf of Gabès). But he also became aware of their extreme vulnerability to human-induced pressures and pollution. As he readily admits, Yassine fell in love with these vast underwater prairies formed by a marine plant called *Posidonia oceanica*, an endemic species of the Mediterranean Sea—so much so that he devoted his doctoral thesis to it.

Often mistaken for algae, *Posidonia* actually has true roots, stems and leaves. These meadows play an essential role in maintaining marine ecosystem balance. They produce large quantities of oxygen through photosynthesis and serve as shelter, food, and breeding grounds for numerous marine species. Moreover, their roots stabilise sediments and anchor the seabed, thereby protecting coastlines from erosion. They also purify seawater by trapping particles and improving clarity. Finally, they are major carbon sinks, capable of storing CO_2 for long periods—making them valuable allies in the fight against climate change.

Yet these fragile ecosystems are now threatened by pollution, boat anchoring, coastal urbanisation and warming waters. If current trends continue, experts predict that *Posidonia* meadows will lose their functional role by the end of the century due to human pressures and climate change. Their greatest threat, according to Yassine, is ignorance. His determination to devote his studies and career to *Posidonia* was sparked by a Tunisian newspaper article describing the plant as a "parasite" during beach-cleaning operations that removed piles of dead seagrass from tourist beaches. "*Calling Posidonia a parasitic plant stems from ignorance and lack of knowledge*," he says. "*And if you don't know it, of course you can't love it. As Cousteau used to say: we love what we know, and we protect what we love. So, once you know how important this plant is, you can't help but fall in love with it and want to protect it.*"

Since then, he has dedicated his career to diving among these meadows, mapping them to identify the best areas for protection, and raising public awareness of their importance. And protection is urgently needed: in the past fifty years, around 34% of *Posidonia* meadows have disappeared. This represents not only an irreversible loss for Mediterranean marine biodiversity but also a setback in the fight against climate change—since degraded or destroyed meadows release their stored CO_2 back into the atmosphere.

MARINE PROTECTED AREAS: A FUNDAMENTAL TOOL TO HALT BIODIVERSITY LOSS

So how can we protect these *Posidonia* meadows and the many endangered marine ecosystems and species in the Mediterranean? For the *Regional Activity Centre for Specially Protected Areas (SPA/RAC)* of the *Mediterranean Action Plan (MAP)* created in Tunis under the Barcelona Convention, where Yassine works, the answer is clear: establish more Marine Protected Areas (MPAs). MPAs are designated sea zones where human activities are regulated to preserve ecosystems, species, and natural resources. They may include parts of the coastline, seabeds, or open-sea zones, with varying levels of protection: some completely ban fishing and anchoring, while others allow sustainable activities such as diving, artisanal fishing, or scientific research.

These areas play a crucial role in conserving marine biodiversity. By limiting human pressures, they enable fragile habitats such as coral reefs, *Posidonia* meadows, or fish spawning grounds to regenerate. They also allow the return of many species and help restore ecological balance. MPAs benefit fish populations by allowing stocks to recover, which, in the long term, supports coastal fisheries.

"*If you want to save a species, you must first save its ecosystem,*" Yassine explains. "*If you want to save a mollusc, you must save its habitat—the Posidonia meadow. The ecosystem approach doesn't only involve thinking about biodiversity, it includes us humans too, with our negative roles (pollution, pressure on nature) and positive ones (conservation, restoration). This approach compels us to limit our impact and give the environment space to breathe, so we can reach a good ecological state.*" Moreover, all studies have shown that MPAs play an important role in mitigating climate change, notably through carbon sequestration by protected ecosystems such as *Posidonia* meadows.

Beyond their ecological role, MPAs also have economic and social value: they encourage sustainable tourism, support local communities, and raise public awareness about the fragility of marine environments. For Yassine, they are also a means of fostering collaboration between economic and social sectors (fishermen, tourism industry, local populations) and between Mediterranean countries themselves. "*When we protect a marine area, whether in Tunisia, Greece or Spain, we are safeguarding a shared Mediterranean heritage.*"

A GEOGRAPHICALLY LIMITED AND UNEVEN PROTECTION

Despite their clear benefits, marine areas under protection covered only 8.33% of the Mediterranean in 2020, according to *MedPAN* and *SPA/RAC.* Of this, just 0.04% was fully closed to fishing. These figures fall far short of the global 30x30 target—protecting 30% of the oceans by 2030. Even more strikingly, 97% of MPAs are located in EU countries.

For Yassine, several factors explain this. Firstly, creating MPAs is a complex and lengthy process. Given the economic and social challenges of many southern Mediterranean countries, the environment is often not a top priority. Secondly, the process is costly: it requires human resources, scientific studies, expeditions, and expensive equipment. Implementation then demands financing for management plans, dedicated teams, and operational materials—budgets many states simply cannot provide. Finally, he notes that in countries like Tunisia, there are de facto marine protected areas that operate as such but lack official status due to the absence of ministerial decrees.

To overcome these obstacles, solutions exist, such as *The MedFund*, created in 2015 by France, Monaco and Tunisia with the support of the *Prince Albert II of Monaco Foundation.* This trust fund mobilises public and private financing to develop and effectively implement MPAs across the Mediterranean. Its goal is to support 20 MPAs by raising €30 million in the medium term (half of which has already been secured). Five Tunisian MPAs, including the Kuriat Islands, have already benefited, even if their status is not yet official.

MANAGING MPAS: THE CHALLENGE OF CO-MANAGEMENT

One of the main issues Yassine raises is MPA management. Only 18% of MPAs across the Mediterranean basin currently have a management plan in place. Yet such a plan—and its implementation—is crucial to ensure that an MPA does not remain a mere "paper park". A management plan defines conservation objectives, usage rules (no-fishing zones, areas open to sustainable tourism, etc.), and monitoring and evaluation mechanisms. It also identifies the stakeholders involved (local authorities, scientists, fishermen, NGOs) and their modes of collaboration.

Budget remains an obstacle, but Yassine highlights a Tunisian success story: "*In Tunisia, the authorities were smart enough to understand that, given the difficult economic situation, these natural areas couldn't be managed with national means alone. So they chose a local association near each MPA and set up a co-management system. The administration enforces regulations, while the local association—comprising about a hundred volunteers—has local roots, knows the fishermen, and understands local practices. Every MPA in Tunisia is now co-managed between the administration and an NGO, combining each partner's strengths.*" For Yassine, this is a model worth replicating.

TRANSCENDING BORDERS FOR BETTER PROTECTION

The ultimate goal, however, is to create transboundary marine protected areas. "*Creating MPAs between different countries is the dream, because biodiversity, like pollution, knows no national borders*," Yassine says. A tangible example proves this possible: the Pelagos Sanctuary, a vast marine protected area for marine mammals spanning around 87,500 km² between France, Italy, and Monaco. It is home to rich biodiversity,

PROTECTION AND MANAGEMENT SYSTEMS OF THE MEDITERRANEAN SEA

in addition to **Marine Protected Areas (MPAs)**, the Mediterranean Sea and its coastal regions are covered by several **complementary protection and management systems** that address biodiversity, habitats, and sustainable resource use. These include:

1. Specially Protected Areas of Mediterranean Importance (SPAMIs) –

Established under the Barcelona Convention and its Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol), SPAMIs protect key ecosystems, habitats, and endangered species at the regional level. They include both national and high-seas sites (e.g., the Pelagos Sanctuary for Mediterranean Marine Mammals).

2 Natura 2000 Marine and Coastal Sites (EU Member States) –

Within EU Mediterranean countries, Natura 2000 networks protect marine and coastal habitats under the EU Birds and Habitats Directives. These often overlap or complement MPAs, ensuring ecosystem connectivity and legal protection within the EU framework.

3. UNESCO Biosphere Reserves and World Heritage Marine Sites –

These designate ecologically and culturally significant coastal and marine zones managed through sustainable development principles (e.g., Menorca Biosphere Reserve, Doñana National Park, Wadi El Gemal National Park).

4. Ramsar Sites (Wetlands of International Importance) –

The Ramsar Convention covers many Mediterranean coastal lagoons, estuaries, and wetlands crucial for migratory birds and biodiversity (e.g., Camargue in France, Ghar el Melh in Tunisia).

5. Fisheries Restricted Areas (FRAs) –

Declared by the General Fisheries Commission for the Mediterranean (GFCM) to protect vulnerable marine ecosystems and overexploited stocks. Examples include the Lophelia Reef off Capo Santa Maria di Leuca (Italy) and areas in the Gulf of Lions.

6. Ecologically or Biologically Significant Marine Areas (EBSAs) –

Identified under the Convention on Biological Diversity (CBD), EBSAs highlight zones of high ecological value that can guide future protection or sustainable use measures.Important Marine

7. Mammal Areas (IMMAs) and Key Biodiversity Areas (KBAs) –

Non-legally binding scientific designations developed by IUCN and partners to identify habitats essential for species survival and guide conservation planning.

including dolphins, sperm whales, and fin whales. Pelagos is unique as the first international marine area dedicated to marine mammals, aimed at reducing human impacts, especially ship strikes. It promotes scientific cooperation and policy coordination among the three signatory states, demonstrating that joint management works. "*Biodiversity issues are among the things that compel us, as Mediterraneans, to talk to each other, even if we disagree on other matters,*" Yassine insists.

For him, climate and environmental crises can only be tackled through collaborative frameworks such as the Barcelona Convention, which provides a shared platform for aligning national policies on fishing, pollution, maritime traffic, and species conservation. This cooperation should also lead to interconnected networks of MPAs, since "*it's not ideal to protect a few isolated square kilometres.*" "*If we truly want to conserve biodiversity, we need a connected network of MPAs, where species can move freely and migratory species—like turtles—can use ecological corridors,*" Yassine adds, noting that this requires more dialogue between Mediterranean nations.

"DARK ZONES": THE NEW FRONTIER OF PROTECTION

While MPA networks seem to represent the future of Mediterranean conservation, the next frontier lies in protecting what are known as "*dark zones*." "*We often forget that 80% of the Mediterranean Sea consists of areas deeper than 100 metres. These habitats are fragile and poorly known because they exist under special conditions, most notably, the absence of light. Yet they harbour rich marine life,*" Yassine explains.

The goal is to better understand these dark zones to establish MPAs that ban destructive activities such as bottom trawling, mining, or hydrocarbon extraction. "*We must develop a collective awareness of the value of these seabeds, because once degraded, such habitats are extremely difficult to restore: they evolve slowly, while we destroy quickly.*"

To this end, *SPA/RAC* has partnered with the Oceana Foundation and the IUCN, organising expeditions with Lebanese researchers along the country's canyon-rich coastline. These missions map life in dark zones using underwater robots that reach depths of up to 1,000 metres, a first step towards new MPAs. The challenge lies in the fact that these deep-sea areas often lie beyond national jurisdictions, where regulation enforcement is complex, hence the need for multilateral frameworks such as the Barcelona Convention.

HOW TO ENSURE COMPLIANCE WITH MPAS?

Beyond legal and financial considerations, an MPA's success largely depends on social acceptance. Convincing fishermen, aquaculture operators, hotel groups, or recreational boaters that an area should be off-limits to human activity for the sake of biodiversity is no easy task. "*It's very difficult to manage a natural area when local stakeholders oppose the project,*" says Yassine. "*They might damage it or ignore restrictions, which can ruin the effort entirely. When we try to protect a species without considering local communities, people might say: 'You're saving the turtles while we can't feed our children.' That message doesn't go through in areas facing economic hardship.*"

This is why, for Yassine and his colleagues, it's essential to adapt communication so that people understand that conservation ultimately benefits humans too. Studies have shown that "no-take" zones within MPAs, over time, actually increase profits for local fishers. But before that, it is crucial to spend time listening to local voices, explaining the benefits of conservation in plain language, and involving them directly in management and sustainable practices. "*In Tunisia, when we create MPAs, we never use the words 'no-take' or 'no-fishing zones' at first,*" Yassine explains. "*We want the fishermen themselves to say: 'We want this zone pro-*

A TRANSBOUNDARY MODEL: THE PELAGOS SANCTUARY FOR MEDITERRANEAN MARINE MAMMALS

Origins and Legal Status

· Established by **France, Italy, and Monaco** in 1999.

· First **transboundary marine protected area** in the Mediterranean dedicated to marine mammals.

· Recognized as a **SPAMI** under the **Barcelona Convention** in 2001.

Size and Location

· Covers **~87,500 km²** in the northwestern Mediterranean.

· Includes waters of **Côte d'Azur, Liguria, Corsica, Sardinia, and Monaco,** from coastal zones to deep pelagic areas.

Biodiversity

· Home to 8 **cetacean species,** including fin whales, sperm whales, bottlenose dolphins, and striped dolphins.

· Important **feeding, breeding, and migratory habitats** for marine mammals.

· Supports overall marine biodiversity, including fish and invertebrates linked to ecosystem health.

Threats

· **A Hot-Spot of Maritime traffic:** ship collisions and underwater noise and disturbance.

· **Pollution:** chemical contaminants, marine litter, and oil spills.

· **Overfishing:** depletion of prey species and bycatch of marine mammals

· **Climate change:** warming waters and ecosystem disruption.

Conservation Goals

· Protect marine mammals and their habitats.

· Reduce human pressures through **regulations, monitoring, and mitigation measures.**

· Promote **research, monitoring, and cooperative management** across borders.

International Cooperation

· Governed by the **Pelagos Agreement** with a **Permanent Secretariat in Monaco.**

· Linked to **UNEP/MAP** and **ACCOBAMS** for regional alignment and coordination.

· Serves as a model for **transboundary marine protected areas** worldwide.

Achievements and Results

· Developed guidelines to **mitigate ship strikes and reduce noise pollution.**

· Implemented coordinated **research, monitoring, and conservation programs.**

· Raised **awareness and promoted sustainable maritime practices.**

More information: **www.pelagos-sanctuary.org**

tected because it's where the fish breed." Once an MPA project becomes concrete, local actors are systematically included in a local management committee that brings together administrators, fishers, tourism operators, and aquaculture representatives twice a year. This practice, standard in Tunisian MPAs, allows problems to be discussed collectively and solutions found collaboratively. "*Biodiversity is vital, but we must also remember that humans, while capable of causing harm, can also help save it,*" he summarises.

INVOLVING LOCAL COMMUNITIES IN CONSERVATION

Engaging local populations in biodiversity conservation is what matters most to Yassine. "*Given the Mediterranean's current state, neither scientists, managers, nor conservation professionals alone can save our sea. It's our duty, but it's also every citizen's responsibility to help preserve it as we know and love it.*" Once again, knowledge leads to love, and love to protection. "*The greatest threat to the Mediterranean is ignorance of its treasures, like these extraordinary Posidonia meadows,*" he concludes.

Making Tunisia's marine environment better known and involving citizens directly in building science is the mission of TunSea, an association founded by Yassine Ramzi Sghaier and friends during the Covid-19 pandemic. What began as a Facebook group has become a true success story, boasting 75,000 members who help collect data on endangered species and share marine knowledge.

The association also brings together a network of scientists who verify and analyse citizen-submitted information. The next step for Yassine is to harness this community's influence to advocate changes in administrative and private-sector practices, for example, to end mechanical beach-cleaning operations that threaten turtle nesting. How can this success and enthusiasm for citizen science be explained? According to Yassine, the key lies in accessible communication: "*First, we used Facebook because 80% of Tunisians use it. Second, we realised that to reach most people, we had to write in Tunisian Arabic, in a language people understand, and abandon English, which would have distanced them.*"

The goal was simple: to democratise science and empower Tunisians to take ownership of environmental action. The association regularly hosts leading Tunisian scientists on its Facebook platform to popularise their research and engage directly with interested citizens. "*Bringing scientists out of their laboratories is crucial. Citizens feel valued when you speak to them in their own language. To me, being a scientist isn't just about publishing papers nobody reads, it's about engaging with your community and simplifying your message.*" Citizen engagement, in turn, has yielded tremendous results: the association's participatory science campaigns, boosted by modern information technologies, have produced vital data that would have taken scientists decades to gather.

SUCCESSES THAT INSPIRE CHANGE

The popular success of TunSea has strengthened Yassine's belief that collective awareness can save the Mediterranean. He draws hope from the growing involvement of young people in climate and environmental causes. "*In Tunisia, I can see change. I see people starting to say, 'Be careful with the environment.' I see seaside hotels putting up signs explaining that Posidonia isn't a parasite, it's vital for the beach. So yes, change is happening,*" he says proudly.

He knows there is still a long way to go but hopes that more young people will see the results of his work at SPA/RAC, the conservation successes achieved through MPAs and be inspired to commit further. Because conservation efforts do bear fruit, and that deserves to be celebrated: fishing quotas have saved the bluefin tuna in the Mediterranean, and protection measures in Tunisia have led to a major increase in turtle nesting, improving the conservation status of green and loggerhead turtles (Caretta caretta). "*That doesn't mean pressures on these species have vanished," he concludes. "It means that the projects and programmes we've implemented are working. We must stay the course and keep going*."


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