



MONACO EXPLORATIONS
Reconnecting Humanity and the Sea



PRESS KIT · SEPTEMBER 2025

GREECE MISSION

OCTOBER 2025



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EDITORIAL

For over a century, the Principality of Monaco has long been committed to the study and preservation of the Ocean. This longstanding commitment dates back to the reign of Prince Albert I of Monaco (1848-1922), a pioneer of modern oceanography who made the knowledge of the seas a cornerstone of his work. Between 1884 and 1915, he led 28 scientific expeditions aboard the vessels *Hirondelle I* and *II* and *Princesse Alice I* and *II*, making a major contribution to the exploration of the deep sea and to our understanding of marine dynamics. In 1906, he founded the Oceanographic Institute, Foundation Albert I, Prince of Monaco, now internationally recognised for its commitment to the Ocean.

Under the reign of Prince Rainier III (1923-2005), this commitment was sustained and strengthened through concrete action, including participation in the 1992 Earth Summit and the signing of pioneering agreements such as the RAMOGE Agreement and the Pelagos Agreement, dedicated to the protection of the Mediterranean Sea and its biodiversity.

Today, H.S.H. Prince Albert II of Monaco continues and builds on this legacy. Since his accession in 2005, he has placed environmental protection at the core of his diplomatic and political action. The Principality of Monaco has thus developed a coherent, visible and internationally recognised commitment, supported by the Prince Albert II of Monaco Foundation, the Oceanographic Institute of Monaco, the Scientific Centre of Monaco and Monaco Explorations.

This ability to bring together high-level partners and mobilise stakeholders around marine issues is one of the defining features of Monaco's influence. Through sustained commitment, recognised expertise and strategic alliances, the Principality is able to exert an impact far beyond its size and resources in environmental negotiations, international coalitions and scientific initiatives.

Guided by this vision at the highest level of the State, Monaco Explorations is entering a new phase of its programme in 2025: the Mediterranean Missions. This campaign, running through to 2030, is part of the United Nations Decade of Ocean Science for Sustainable Development. It builds on a prestigious legacy while opening up new avenues for action, with a clear ambition: to enhance knowledge, cooperation and awareness around a marine region that is both vital and under growing pressure.

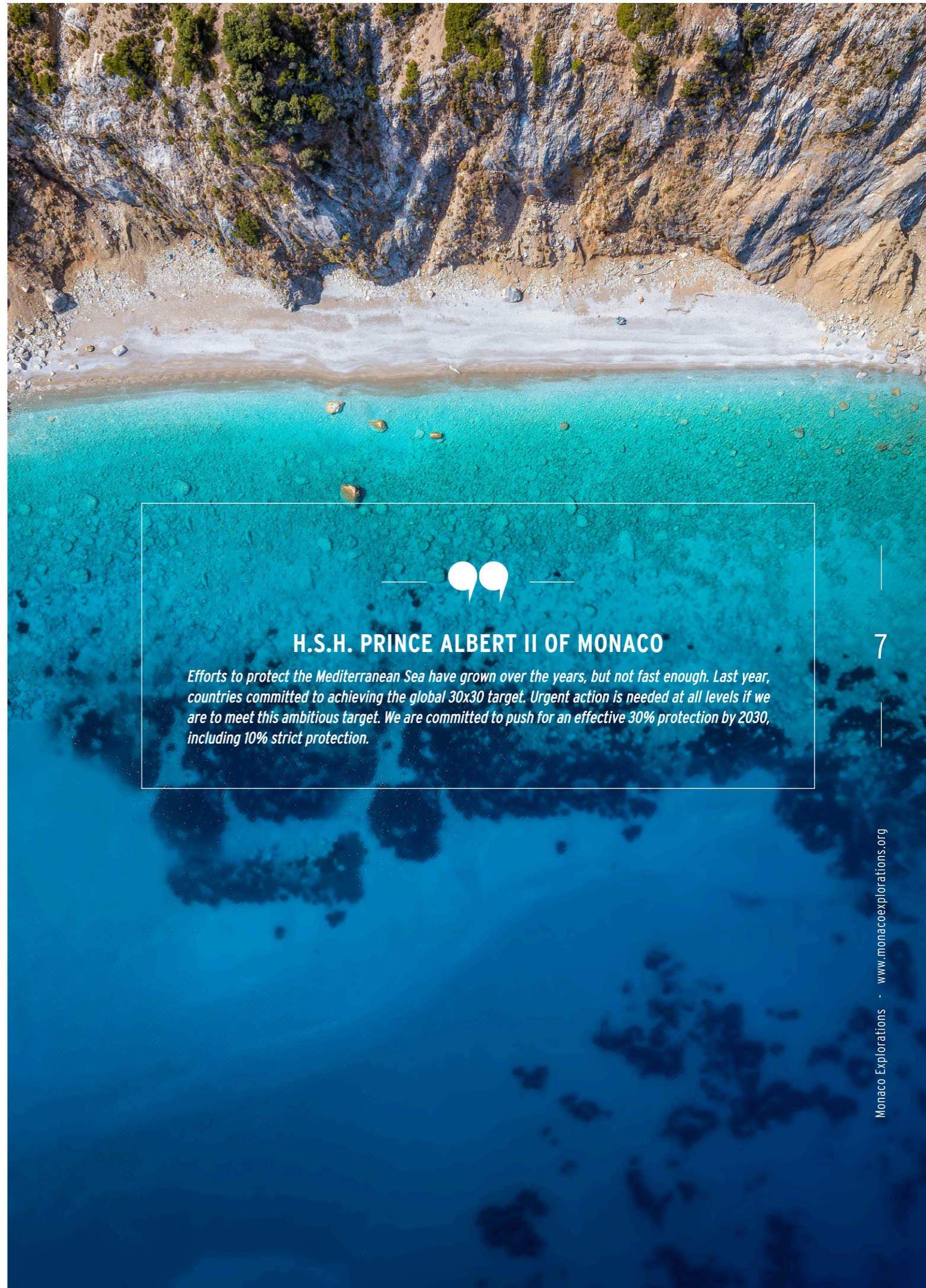
Indeed, it is in the Mediterranean Sea that a decisive part of our shared ocean future will be decided. A sea of history, culture, trade and biodiversity, it is also a space under significant strain. It is our collective responsibility to respond to this challenge with scientific rigour, diplomatic commitment and innovative approaches to education.

Greece, the first phase of the Mediterranean Missions, embodies this ambition. As the cradle of maritime civilisations and a country actively engaged in protecting its ecosystems, it shares with Monaco a longstanding tradition of openness to and respect for the sea. This initial phase marks the launch of a collective movement dedicated to building a sustainable Mediterranean, bringing together knowledge, commitment and innovation.

Together, building on a centuries-old legacy, we have the means to act. And the time for action is now.

This choice reflects a strong commitment: to initiate a collective movement rooted in history and focused on the future, with the ambition of bringing together knowledge, cooperation and action to protect our Mediterranean – a source of life and a vital link between the peoples who share its shores.

Robert Calcagno,
Managing Chairman and Chief Executive Officer of Monaco Explorations



H.S.H. PRINCE ALBERT II OF MONACO

Efforts to protect the Mediterranean Sea have grown over the years, but not fast enough. Last year, countries committed to achieving the global 30x30 target. Urgent action is needed at all levels if we are to meet this ambitious target. We are committed to push for an effective 30% protection by 2030, including 10% strict protection.



PROTECTING THE MEDITERRANEAN SEA MEAN PROTECTING OUR FUTURE

△ *Echinaster sepositus* - Red starfish, underwater image in the Mediterranean Sea © Vojta

ALARMING FACTS

An enclosed sea surrounded by land, the Mediterranean is unique: a crossroads between three continents, a hotspot of biodiversity, and a reservoir of culture and history. Yet this exceptional natural heritage is now under threat. Although it accounts for only 0.8% of the world's ocean surface, the Mediterranean is home to 7.5% of marine species, 19% of which are endemic. These figures reflect both its richness and its vulnerability.

This semi-enclosed basin is facing unprecedented pressures: climate change, human-induced pressures such as chemical and plastic pollution, overfishing, coastal development, mass tourism, and the introduction of non-native species...

The Mediterranean is warming 20% faster than the global average, and marine heatwaves in recent years have caused significant mortality among certain sessile invertebrates, such as gorgonians on coralligenous reefs, which have been particularly affected by these events.

Of the 522 million people living in countries bordering the Mediterranean, around 173 million are concentrated along a coastal strip just 5 to 10 kilometres wide. The Mediterranean alone accounts for nearly 30% of global tourism, making it the world's leading tourist destination.

Plastic pollution is one of the most visible and persistent threats. Every year, several hundred thousand tonnes of plastic waste enter the Mediterranean. Degraded by UV radiation and wave action, this plastic fragments into microplastics that infiltrate food chains, affecting fish, seabirds, and ultimately humans.

The introduction of non-native species is another major concern. Driven by maritime traffic and rising water temperatures, it is disrupting local ecosystems: certain species, such as lionfish, establish themselves at the expense of native biodiversity, altering trophic interactions and habitat structure.

Coastal development, for its part, destroys essential coastal habitats such as seagrass meadows and lagoons. These environments play a fundamental role in species reproduction, carbon sequestration, and protection against coastal erosion.

Finally, the overexploitation of marine resources is weakening the entire trophic network: 58% of Mediterranean fish stocks are overexploited.

Intensive fishing practices, often non-selective, compromise the natural regeneration of stocks and threaten the food security of local populations.

THE CENTRAL ROLE OF MPAs

As H.S.H. Prince Albert II of Monaco recalled at the 9th “Our Ocean” Conference held in Athens in 2024: “Efforts to protect the Mediterranean Sea have grown over the years, but not fast enough. In December 2022, countries committed to achieving the global 30x30 target. Urgent action is needed at all levels if we are to meet this ambitious target. We are committed to push for an effective 30% protection by 2030, including 10% strict protection.”

In light of these alarming findings, it is imperative to design science-based strategies to restore the ecological functions of the sea and preserve the vital resources it provides to human societies

Among these strategies, Marine Protected Areas (MPAs) play a central role. When they are designed within a coherent strategy, supported by strong political commitment, and effectively managed with the involvement of all relevant stakeholders, they become sanctuaries for biodiversity, drivers of climate resilience, and enablers of sustainable local development.



Aerial view of the Trikeri Peninsula – southern coast of the Pagasetic Gulf – Greece © Giovanni Rinaldi



Oceanographic Museum of Monaco © Iryna Savina

THE PRINCIPALITY: A LONG-TERM COMMITMENT

This vision of the Mediterranean as a “universal heritage and a common good to be protected” has guided the Principality of Monaco’s action in recent years, through the engagement of its institutions.

The Oceanographic Institute of Monaco, in particular, has launched its multi-year “Mediterranean 2050” programme, advancing an ambitious yet achievable vision, developed in collaboration with scientists, policymakers and economic stakeholders: to make the Mediterranean a global model for sustainable management. Among its many initiatives, the eponymous “Mediterranean 2050” exhibition offers the Oceanographic Museum’s 650,000 annual visitors a unique journey through the past, present and an idealised future of the Mediterranean.

The Prince Albert II of Monaco Foundation (FPA2) has also placed the Mediterranean at the heart of its priorities, supporting numerous research, conservation and marine governance projects throughout the basin. In particular, it coordinates flagship programmes such as BeMed, since 2015, to combat plastic pollution; The MedFund, since 2015, a trust fund supporting MPAs; and the Monk Seal Alliance, since 2019, for the protection of the Mediterranean monk seal.

It is within this shared and complementary framework that the Monaco Explorations Greece Mission takes place, as the first stage of a long-term commitment across the Mediterranean basin.



MONACO EXPLORATIONS



AND THE MEDITERRANEAN MISSIONS:

MOBILISING TO ACHIEVE THE 30X30 TARGET

△ Photograph inspired by the Sails of Change campaign © DR

Since their launch in 2017, Monaco Explorations – a platform serving the commitment of H.S.H. Prince Albert II of Monaco to advancing knowledge, sustainable management and the protection of the Ocean – have organised or supported 19 missions worldwide. Each of these missions, in keeping with Monaco's oceanographic heritage, is built on three fundamental pillars: scientific research, environmental diplomacy, and the dissemination of knowledge with the widest possible audience.

In a global context marked by ecological urgency, Monaco Explorations is fully aligned with the objectives of the Kunming-Montreal Global Biodiversity Framework, adopted at COP15. This landmark agreement sets out an ambitious target: to protect at least 30% of the world's terrestrial and marine environments by 2030 – a goal widely known as "30x30".

Despite being a major biodiversity hotspot, the Mediterranean remains insufficiently protected: 8.33% of its marine areas are designated as protected, and only 1.5% benefit from management plans ensuring truly effective protection. This is why Monaco Explorations has made this basin a priority. Through structured support – scientific, diplomatic and logistical – they aim to actively contribute to the implementation of the 30x30 target across the region.

In this context, the Mediterranean Missions were launched, officially announced in April 2024 in Barcelona, during the second UN Ocean Decade Conference. This launch marked a turning point, anchoring the Mediterranean Missions within an international framework while reaffirming Monaco Explorations' long-term commitment.



△ Inaugural session of the 2nd Ocean Decade Conference, 10 April 2024 © M.Alesi - Prince's Palace



XAVIER PRACHE

In collaboration with all partners involved in the conservation and sustainable management of the Mediterranean environment, Monaco Explorations aims to highlight the urgency and importance of accelerating the development and effective management of Marine Protected Areas in the region.

Xavier Prache,
Mission leader and Director of Monaco Explorations

The Mediterranean Missions, deployed between 2025 and 2030, represent the second phase of the Monaco Explorations programme, following the Indian Ocean mission in 2022. They are structured as a series of national campaigns, developed in close consultation with local partners and institutions, and coordinated within a coherent regional strategy.

Their ambition is clear: to support the strengthening of Marine Protected Areas by combining habitat mapping, ecological assessments, the development of tools for MPA managers, and the promotion of best practices. This approach is built on a deliberate synergy between field-based scientific research, proactive environmental diplomacy, and public engagement.

Supported by key regional partners – MedPAN, SPA/RAC, The MedFund, the Monk Seal Alliance, as well as numerous scientific, institutional and civil society actors – the Mediterranean Missions are based on shared governance and a participatory approach. By strengthening local capacities, promoting solutions rooted in local contexts, and fostering dialogue across disciplines and cultures, they reflect a collective mobilisation for the future of the Mediterranean Sea.

Through the Mediterranean Missions, Monaco Explorations aims to act as a catalyst for effective, equitable and sustainable protection of our shared sea – a sea we all depend on, and one we must preserve together.



A NEXT-GENERATION VESSEL FOR A FLAGSHIP MISSION



The MODX 70 is a hybrid sailing and electric-powered catamaran designed to operate with minimal environmental impact, combining energy efficiency, low noise levels and reduced emissions. Equipped with inflatable Aeroforce® wings, photovoltaic panels, hydrogenerators and recyclable materials, it embodies an innovative approach to maritime mobility. Its low carbon footprint makes it particularly well suited to operations in sensitive environments such as Marine Protected Areas.

Although not a research vessel in the strictest sense, it provides a workspace suitable for the deployment of lightweight scientific instruments and the monitoring of coastal environments. It also enables the transmission of data collected at sea in formats that are directly usable by local stakeholders.

The MODX 70 also serves as a powerful outreach tool, demonstrating that another form of navigation is possible – cleaner, quieter and more responsible. Through onboard visits, demonstrations and workshops, it becomes a platform for raising awareness of the ecological transition in the maritime sector, while showcasing practical, forward-looking solutions.

As part of the **Greece Mission**, it will embody the Principality of Monaco's commitment to a Mediterranean that is better understood, better protected and shared.

◀△ MODX 70 – March 2025 © Océan Développement - Martin Viezzer



GREECE: THE FIRST STEP IN A MEDITERRANEAN ODYSSEY

Greece could only be a natural starting point for this Mediterranean adventure. A land of seafarers and scientists, it embodies both a millennia-old relationship with the sea and a strong contemporary commitment to conservation. It offers a unique field of action, combining exceptional biodiversity, engaged institutions and an active civil society.

Among the iconic sites selected: the National Marine Park of Alonissos and Northern Sporades, the first marine park established in Greece and the largest Marine Protected Area in the Mediterranean, a true sanctuary for the Mediterranean monk seal; the Pagasetic Gulf, a dynamic interface between urban areas, the sea and natural environments; and the island of Gyaros, in the north-eastern Cyclades, designated as a Natura 2000 site and a laboratory for ecological restoration, rich in scientific potential.



XAVIER PRACHE

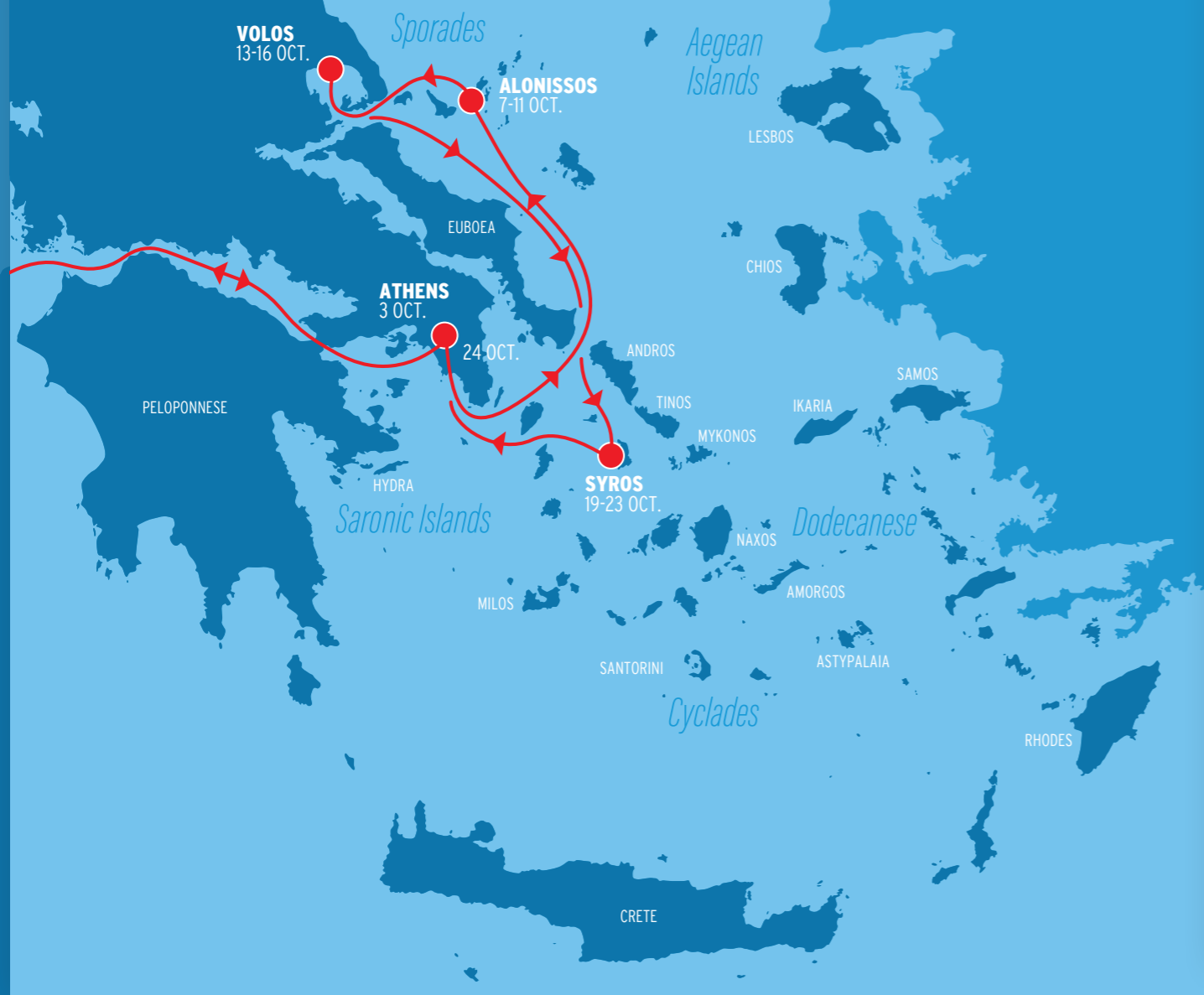
Supporting initiatives, bringing stakeholders together, mobilising resources, explaining, acting on the ground, contributing to the dissemination of knowledge, and driving momentum through government action, outreach and science: we will strive, in operational terms, to help create the conditions for success of this collective endeavour.

Xavier Prache,
Mission Leader and Director of Monaco
Explorations

Greece shares with the Principality of Monaco a common vision of the sea as a shared good, to be protected with clear-eyed realism and solidarity. The preparatory work carried out in close cooperation with the Natural Environment and Climate Change Agency (N.E.C.C.A.) reflects this alignment. It will help anchor actions over the long term, in support of a Mediterranean that is better understood and more effectively governed.



ITINERARY OF THE GREECE MISSION



The Greece Mission will take place in October 2025 with a series of stopovers carefully selected for their ecological, scientific and diplomatic relevance. Each stage will combine field operations, public events and institutional exchanges.

- **Monaco (25 September)** : departure for Greece.
- **Athens (3-4 October)** : opening of the travelling exhibition *"Time for Action: Marine Protected Areas in the Mediterranean"*, meetings with civil society and media.
- **Alonissos (7-11 October)** : visit by H.S.H. Prince Albert II of Monaco and launch of scientific activities in the National Marine Park of the Northern Sporades. Scientific dives, monitoring of the Mediterranean monk seal, exchanges with park managers, and outreach sessions for school audiences.
- **Volos (13-16 October)** : demonstration of scientific tools, research activities and onboard outreach activities on the MODX 70 in the Pagasetic Gulf.
- **Syros (19-22 October)** : scientific and outreach activities.
- **Athens (24 October)** : intermediate closing sequence. Presentation of mission outcomes followed by a talk by a scientist at an event organised at the Eugenides Foundation.
- **Return to Monaco (31 October)** : conclusion of the mission.

At each stopover, the MODX 70 will play a central role as a platform for observation, dialogue and knowledge sharing. The programme combines scientific rigour, openness to dialogue and public engagement, making each stage a driver of transformation at both local and regional levels.



SCIENCE AT THE CORE OF THE MISSION

Through the Greece Mission, Monaco Explorations aims to combine two complementary levels of scientific work: a local approach, developed in close collaboration with the Natural Environment and Climate Change Agency (N.E.C.C.A.), Marine Protected Area (MPA) managers in Greece, and local scientific partners (the University of Thessaly and the Hellenic Centre for Marine Research); and a regional approach, connected to major initiatives across the Mediterranean basin.

The overarching scientific focus of the mission is the connectivity between pelagic and benthic environments and its role in the spread of non-native species and pollutants. This cross-cutting theme provides a framework to address both the complexity and the vulnerability of the ecosystems that Marine Protected Areas are intended to protect.

◀ Kike Ballesteros, ecologist, studying marine forests in the Columbretes Islands © Luisa Mangialajo

REGIONAL-SCALE SCIENTIFIC PROJECTS



PLANKTO-MED : A COMPREHENSIVE AND COLLABORATIVE APPROACH TO THE INVISIBLE LIFE OF SEAWATER

Adapted from the international Plankton Planet programme, this project relies on simple, robust and relatively low-cost instruments capable of sampling surface plankton throughout the vessel's journey.

From departure in Monaco to the return, including each Greek stopover, researchers and crew members will collect genetic and imaging data on plankton biodiversity in the Mediterranean. The objectives are threefold: to improve understanding of marine ecosystem health, to strengthen the capacity of managers to monitor these environments independently and sustainably, and to produce plankton biodiversity data directly comparable to those obtained from space by NASA's new PACE satellite.

Plankto-Med will in particular:

- **Establish a baseline of plankton biodiversity** in Greek waters and, more broadly, across the Mediterranean basin;
- **Compare ecosystems within and outside Marine Protected Areas (MPAs)**, including in areas subject to significant anthropogenic pressures (ports, agricultural zones, pollution, marine heatwaves);

- **Spark public curiosity**, at each stopover through the "Curiosity microscope", deployed as part of the "Living Water" workshops, revealing the remarkable diversity of micro-organisms present in every litre of seawater;
- **Build a pan-Mediterranean network of users** of these instruments to establish a collaborative, coherent and long-term monitoring system for the biological health of Mediterranean waters.

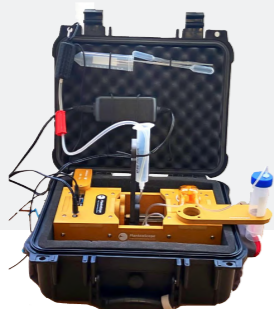
Beyond plankton, this project contributes to an **integrated understanding of marine dynamics**. In synergy with other scientific components of the mission, Plankto-Med will enhance the analysis of:

- the **conservation status of macroalgal forests**, key indicators of coastal ecosystem health;
- **marine pollution**, in relation to the presence of microplastics and other contaminants;
- the **monitoring of non-native species**, whose integration dynamics will be better understood;
- and more broadly, the **ecological complexity** of Mediterranean MPAs, taking into account their biological connectivity.

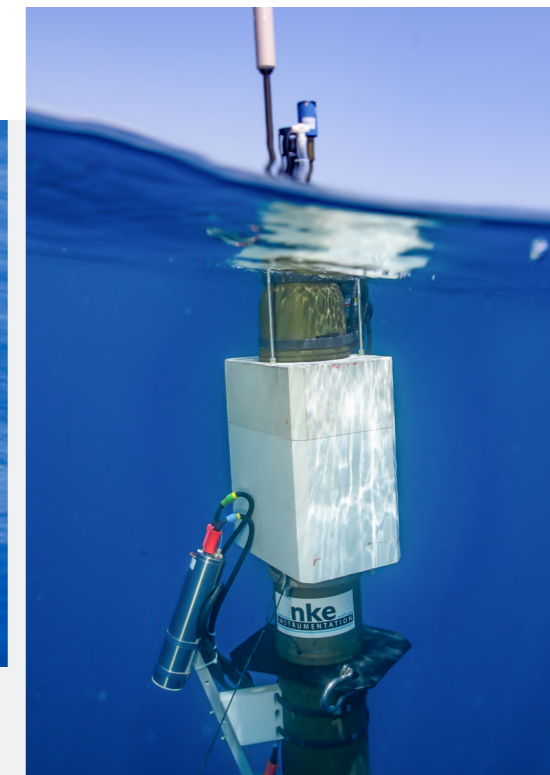
Actively supported by the Natural Environment and Climate Change Agency (N.E.C.C.A.), the mission will also contribute to presenting these tools to Greek MPA managers, with a view to knowledge transfer and long-term capacity building.



The PlanktoScope:
a flow-through quantitative microscope



The Curiosity microscope :
an ultra-compact digital microscope



BGC-ARGO-ION: EXPLORING THE DEPTHS TO BETTER UNDERSTAND THE FUTURE OF THE OCEAN

At the heart of the Greece Mission, the BGC-Argo-ION project makes a key contribution to continuous ocean observation. This international programme deploys autonomous profiling floats capable of measuring, from the surface down to 2,000 meters, a range of fundamental variables used to monitor marine ecosystem health and anticipate their evolution in response to climate change.

These instruments – true underwater robots – collect high-frequency data such as temperature, salinity, pH, dissolved oxygen, nitrates, chlorophyll-a, suspended particles and light intensity. A new generation of floats, equipped with sensors targeting biological parameters, is currently under development. It will enable the estimation of phytoplankton and zooplankton composition, as well as the flux of organic matter from the surface to the deep ocean.

As part of the Greece Mission, the programme will be deployed through a series of coordinated operations adapted to the different phases of navigation between stopovers:

- **deployment and recovery of BGC-Argo floats** in the eastern Mediterranean, contributing to the maintenance of the global observation network;
- **collection of reference data** using a Niskin bottle and onboard sensors, in particular to calibrate float instruments before or after deployment;
- **bio-optical measurements using a Hyper-Pro buoy**, to validate satellite ocean color data, in partnership with the European Space Agency (ESA) and NASA;
- **regular surface water sampling** along the route to analyse chemical composition, optical properties and phytoplankton diversity, linking these observations to satellite imagery.

This high-resolution work aims to **strengthen climate prediction models**, improve understanding of marine primary production processes, and support evidence-based conservation policies. Thanks to their autonomy and resilience, BGC-Argo floats provide an ideal complement to the coastal observations carried out aboard the MODX 70.



SOOP

Shaping an Ocean Of Possibilities for science-industry collaboration

SAILINGBOX : MAKING OCEANOGRAPHIC SCIENCE MORE ACCESSIBLE AT SEA

Developed by the German research institute Hereon as part of the Helmholtz SOOP (Shaping an Ocean Of Possibilities) programme, this project reflects a strong innovation-driven approach in support of citizen science.

The SailingBox is a portable system designed to measure, in real time, several key parameters of surface seawater, essential to understanding biogeochemical processes in the Mediterranean. Aboard the MODX 70, it will be used to test accessible, low-cost sensors capable of measuring pH, as well as oxygen, temperature and salinity. These sensors will be benchmarked against a reference instrument (the Pocket FerryBox) to assess their reliability under real navigation conditions. The objective is to make these tools suitable for routine use on small vessels.

Additional measurements of the partial pressure of carbon dioxide (pCO₂), along with pH measurements, will be used as potential indicators of ocean acidification.

The data collected will also provide insight into seasonal variations in surface conditions: how temperature and salinity vary across water masses, which areas are more exposed to heat or freshwater inputs (rainfall, runoff, discharges), and how these changes influence marine biodiversity, particularly around Marine Protected Areas. These measurements will help refine our understanding of climate change impacts at the local scale.

By enabling reliable data collection using lightweight, cost-effective tools, the SailingBox project opens up new opportunities for community-based and participatory monitoring across the Mediterranean, supporting broader access to observation capabilities and strengthening local networks.

△ Portable system SailingBox © DR

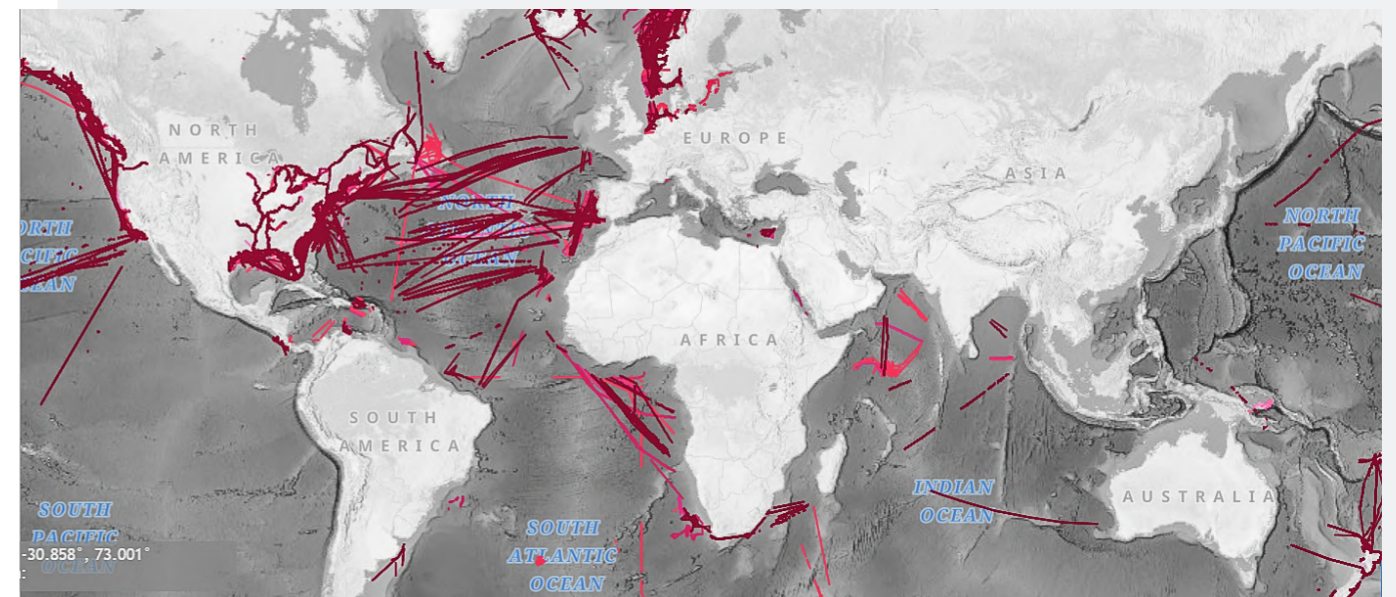


PARTICIPATORY BATHYMETRY: MAPPING THE SEAFLOOR COLLECTIVELY WHILE UNDERWAY

Participatory bathymetry is an innovative approach to enhancing our knowledge of the seabed, developed by the International Hydrographic Organization (IHO), an intergovernmental organisation headquartered in Monaco. Using data loggers that can be connected to existing onboard navigation systems, a wide range of users can contribute to collecting information on seabed depth and topography. These data are then centralised via open platforms such as the IHO Data Centre for Digital Bathymetry (DCDB).

Any vessel equipped with sonar can contribute to this project – researchers, recreational sailors, as well as the shipping and cruise industries – by collecting data. These data are essential for identifying underwater features such as canyons, submarine volcanoes and seamounts, and for improving nautical charts, which remain incomplete in many areas.

This project aims to enhance knowledge of marine environments through a collaborative approach. Information on seabed depth and topography underpins a wide range of applications, from biodiversity conservation and sustainable resource management to navigation safety. The shape of the seabed directly influences, for example, feeding and diving areas for cetaceans and other large marine species. In Greece, this will help improve bathymetric data in several still poorly documented areas, with the support of local partners, particularly N.E.C.C.A.



△ Illustration of data collected through the IHO participatory bathymetry project © IHO Data Centre for Digital Bathymetry (DCDB)

LOCAL PROJECTS IN GREECE



MAR4PAST: THE LIVING MEMORY OF MARINE FORESTS

Mediterranean rocky ecosystems – and in particular marine forests formed by large brown algae (such as *Cystoseira* species) – are a cornerstone of coastal biodiversity. Acting simultaneously as shelters, nurseries and areas of biological production, these key habitats are nevertheless severely threatened by increasing human pressures: climate change, pollution, the proliferation of herbivores linked to the decline of their predators, and uncontrolled coastal development.

Observations will be carried out through scientific diving, using simple, rapid and reproducible methods derived from experimental ecology (visual counts of fish and invertebrates, estimation of macroalgal community biomass). These will provide an updated assessment of the structure and composition of macroalgae-dominated coastal ecosystems, while identifying potential trends of degradation or resilience in response to grazing pressure.

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The MAR4PAST project (Marine Forests for the Past and the Future) aims to assess the current state of these marine forests in relation to herbivore pressure (fish and sea urchins). It is based on a novel approach: revisiting emblematic Greek sites studied more than fifteen years ago – notably around Alonissos, Piperi and Gyaros – in order to conduct comparative surveys and document their long-term evolution.

The results of this study will help improve understanding of the dynamics of marine forest decline in the eastern Mediterranean and enable comparison with similar data collected in the western basin. Through this combined analysis of current and historical data, the project will also contribute to a better understanding of the long-term impacts of human activities.



△ Two scientists studying marine forests in southern Sardinia. © Luisa Mangialajo



EXOFISH-MED: MONITORING NON-NATIVE SPECIES WITH LOCAL STAKEHOLDERS

The eastern Mediterranean is now one of the world's hotspots for the introduction of non-native marine species, largely driven by intensified maritime traffic and rising water temperatures. While some species remain relatively unobtrusive, others can profoundly disrupt ecological balances by altering food webs or competing with native species.

The programme is structured in two phases:

- a theoretical training session, presenting ecological issues, target species and survey methodology;
- a practical application through diving surveys conducted along defined transects, enabling the collection of standardised data.

The EXOFISH-MED project addresses this challenge through a participatory science approach, training Marine Protected Area (MPA) managers, scientists and recreational divers in a standardised protocol for recording non-native fish species. Without requiring long-term commitment, the objective is to equip them with a practical, reproducible and accessible tool to strengthen field monitoring.

The data collected will be centralised and analysed by the ECOSEAS laboratory, specialised in marine ecology. They will make it possible to document the integration dynamics of non-native species within local ecosystems, identify sensitive areas, and better inform management strategies.

By strengthening local capacities and actively involving field stakeholders, EXOFISH-MED contributes to the co-construction of a regional ecological monitoring system. It fully reflects the philosophy of the Mediterranean Missions: combining scientific expertise, citizen participation and concrete action to support biodiversity conservation.



◁△ Pterois miles - Lionfish © Virginie Raybaud

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MARINE FORESTS AND MICROPLASTICS: ASSESSING THE ROLE OF ECOSYSTEMS IN POLLUTANT RETENTION

Among the many threats facing marine ecosystems, plastic pollution – whether visible or microscopic – represents a growing challenge for research, management and public awareness. In response, teams at the Scientific Centre of Monaco are conducting an innovative project to investigate the role of marine forests in capturing microplastics and nanoplastics.

Marine forests, whether animal (gorgonians, corals) or plant-based (Posidonia seagrass meadows, brown algae such as Cystoseira), provide complex structures that favor the accumulation of suspended particles. The project aims to determine whether these ecosystems play a role in the sedimentation of plastic particles.

Two sampling protocols will be implemented:

- **at the surface**, using **plankton nets** towed at low speed (less than 4 knots) during short sampling sessions (10 to 15 minutes), to collect suspended microplastics;
- **on the seabed**, in **coastal sediments**, through scientific diving operations enabling the collection and analysis of deposits within and around marine forests.

Beyond advancing scientific knowledge, this programme has a strong operational dimension. It could enable the training of Marine Protected Area managers and scientists in simple, reproducible monitoring techniques for plastic pollution, adapted to their available resources and applicable over time.

△ Posidonia seagrass meadow (*Posidonia oceanica*) in the Mediterranean Sea © Pommeyrol Vincent

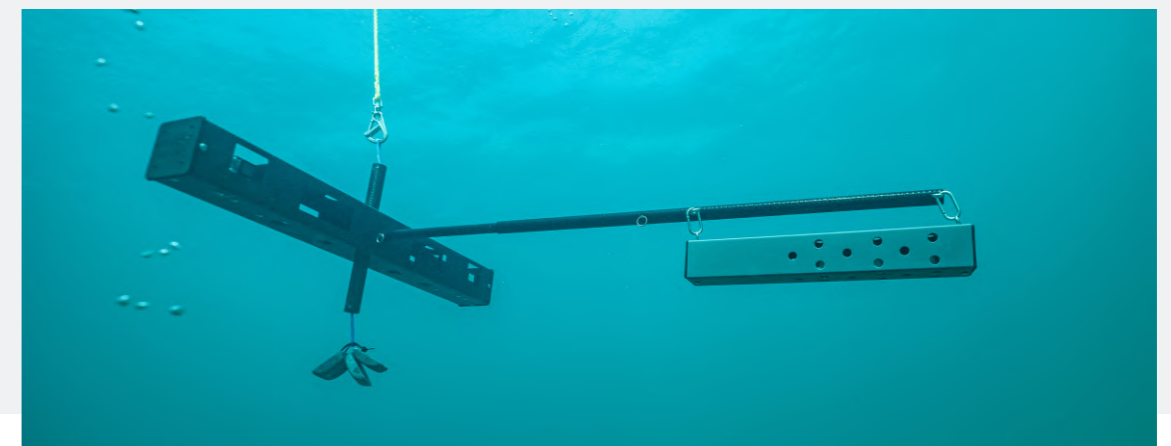
DEMONSTRATION OF DATA COLLECTION TOOLS WITH MPA MANAGERS AND RESEARCHERS



Beyond onboard research activities, the Greece Mission also offers a concrete opportunity for knowledge transfer and capacity building at the local level. The MODX 70 stopovers will be used to showcase a selection of innovative marine data collection tools to Marine Protected Area (MPA) managers and university researchers. Three tools will be demonstrated on board during the stopover in Volos, for local stakeholders interested in their use. The objective is to foster long-term collaboration in ecological monitoring and to encourage MPA managers themselves to take ownership of scientific tools. This approach fully reflects the mission of Monaco Explorations: making scientific research a practical tool for ocean protection.

Albert II of Monaco Foundation, Community Jameel (philanthropic organisation), and Thalassa Marine Research (a marine ecology consultancy). Its deployment in Greece will enable the transfer of both technical and scientific expertise to local MPA managers.

- **Plankto-Med:** As the Mediterranean extension of the international Plankton Planet programme, Plankto-Med provides a means of assessing the diversity and health of plankton, the foundation of the marine food web. Thanks to participatory protocols and tools adapted to light navigation, it can be readily implemented within MPAs.
- **Benthic Monitoring with COSMA:** In partnership with the French start-up Cosma, this project offers an innovative system for surveying and monitoring seabed ecosystems. Using submersible devices capable of capturing images very close to the seafloor, combined with photogrammetry algorithms, Cosma is able to cover large areas with very high-resolution imagery. The resulting maps and spatial analyses, enhanced through artificial intelligence, provide powerful tools for scientists and managers working on sensitive benthic habitats such as seagrass meadows and coralligenous reefs.
- **BRUVS Cameras (Baited Remote Underwater Video Systems):** BRUVS are baited underwater video systems that enable the observation and recording of marine species without direct human interference. These systems are particularly effective for monitoring marine life across a range of habitats, including those that are difficult to access. This project was initially implemented in the Larvotto Marine Protected Area in Monaco, in partnership with the Monegasque Association for the Protection of Nature (manager of Monaco's MPAs), the Prince



BRUVS Camera - Monaco © DR



ENVIRONMENTAL DIPLOMACY AND REGIONAL COOPERATION

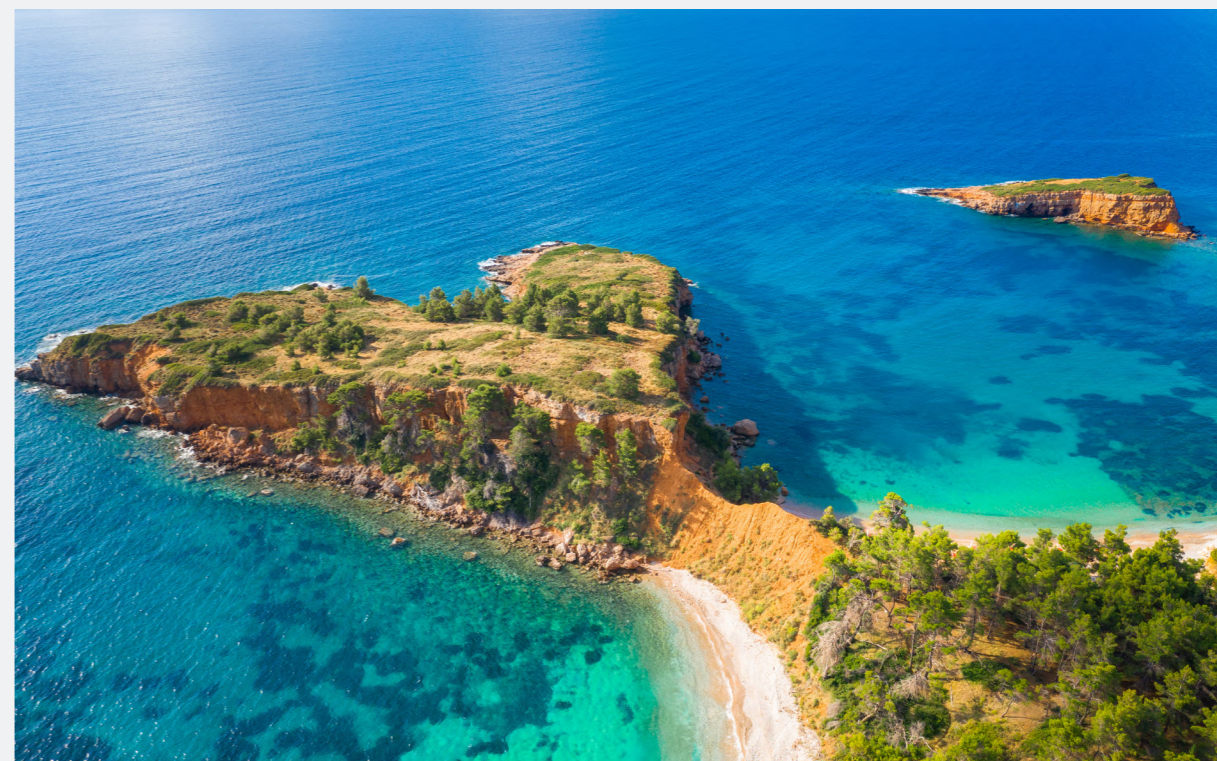


The Greece Mission is also part of a clearly defined diplomatic strategy. It aims to strengthen ties between Monaco and Mediterranean countries around a shared objective: protecting the sea. Through a series of meetings and exchanges, the Greece Mission brings together policymakers, scientists and Marine Protected Area (MPA) managers within a shared framework for action.

H.S.H. Prince Albert II of Monaco will play an active role in this dynamic. His presence in Alonissos during the mission – a Marine Protected Area benefiting from a high level of protection and supported by the Monegasque trust fund for MPAs, The MedFund – will embody the Princely commitment to ambitious environmental governance.

The dialogue established with the Greek authorities, in particular the Natural Environment and Climate Change Agency (N.E.C.C.A.), will help identify shared priorities, pool efforts and expand institutional partnerships.

Beyond bilateral relations, the mission aims to strengthen the coherence of actions across the Mediterranean basin. It will contribute to structuring a space for Mediterranean cooperation around Marine Protected Areas, scientific research and sustainable management. It will also help bring local initiatives to the forefront of major international forums, including the “Our Ocean” conference, biodiversity summits and the United Nations Decade of Ocean Science for Sustainable Development.



△ Kokkinokastro beach, Alonissos Island – Sporades – Greece © Georgios Tsihchis



A SHARED MISSION: OUTREACH AND AWARENESS

The Greece Mission of Monaco Explorations is built on a strong commitment to sharing knowledge. Alongside its scientific and diplomatic objectives, it includes a comprehensive outreach programme designed to bridge the gap between science and society by engaging emotions, knowledge and civic participation. At each stopover, activities will be organised to raise public awareness – particularly among younger audiences – of the richness, fragility and future of the Mediterranean Sea.

A TRAVELLING EXHIBITION: “TIME FOR ACTION: MARINE PROTECTED AREAS IN THE MEDITERRANEAN”

Designed and produced by Monaco Explorations in collaboration with its partners involved in the management of Marine Protected Areas (SPA/RAC, The MedFund, MedPAN, the Monk Seal Alliance), this exhibition presents MPAs as one of the key pillars of conservation strategies in the Mediterranean. Through a visual and educational approach, it enables the public to better understand how these protection tools function, the pressures affecting marine environments, and the solutions available to reconcile biodiversity conservation with human activities.

The exhibition will be hosted at the Eugenides Foundation in Athens from 4 to 31 October 2025 and will be open to the general public throughout the mission.

A digital version of the exhibition has also been specifically developed for use in classrooms. A download link will be made available to teachers wishing to introduce their students to Marine Protected Areas. This initiative will extend the educational experience on land and strengthen the programme's local anchoring in the regions visited during the mission.

“MEDITERRANEAN SEA” WORKSHOP: BUILDING A SUSTAINABLE FUTURE TOGETHER

Developed by the Oceanographic Institute of Monaco, the “Mediterranean Sea” workshop is a collaborative and participatory tool designed for a wide range of audiences – students, citizens and policymakers. Through an interactive approach, participants explore the geographical features, biodiversity and pressures affecting this semi-enclosed sea. They are invited to

reflect collectively on environmental, economic and social challenges, and to propose concrete solutions for sustainable coexistence between human activities and the natural environment. The workshop places particular emphasis on the role of Marine Protected Areas and aims to foster a shared vision and encourage action.



“LIVING WATER” WORKSHOP: MAKING THE INVISIBLE VISIBLE

Seawater is teeming with invisible life – plankton – whose biodiversity not only reflects water quality but also regulates the functioning and health of seas and oceans and determines the productivity of larger marine organisms (fish, molluscs, birds, mammals, etc.). The “Living Water” outreach workshop aims to raise awareness among young people across the Mediterranean of the beauty and fragility of these micro-organisms, using the “Curiosity” microscope.

These interactive sessions allow students to explore the little-known world of plankton, the foundation of the marine food web. Through microscope observations, the use of sampling nets, educational games and discussions with scientists on board, participants gain a hands-on understanding of marine ecosystems and their crucial role in ocean balance. The workshops also provide an entry point into citizen science.

AN IMMERSIVE VIRTUAL REALITY EXPERIENCE: IMMERSEAVE VR

ImmerSEAVE VR, an immersive device developed by the Oceanographic Institute of Monaco, offers a virtual dive into a Mediterranean Marine Protected Area. Using a virtual reality headset, adult audiences can explore reconstructed 3D habitats (Posidonia seagrass meadows, coralligenous reefs, underwater forests), guided by an educational narrative. This sensory experience is designed to convey both the richness and the vulnerability of these ecosystems, as well as the need to protect them.

As part of the Greece Mission, this tool will be presented in particular to institutional, scientific and

official partners visiting the MODX 70. It will represent a key moment of awareness, complementing scientific discussions by offering a tangible and immersive understanding of marine conservation challenges.

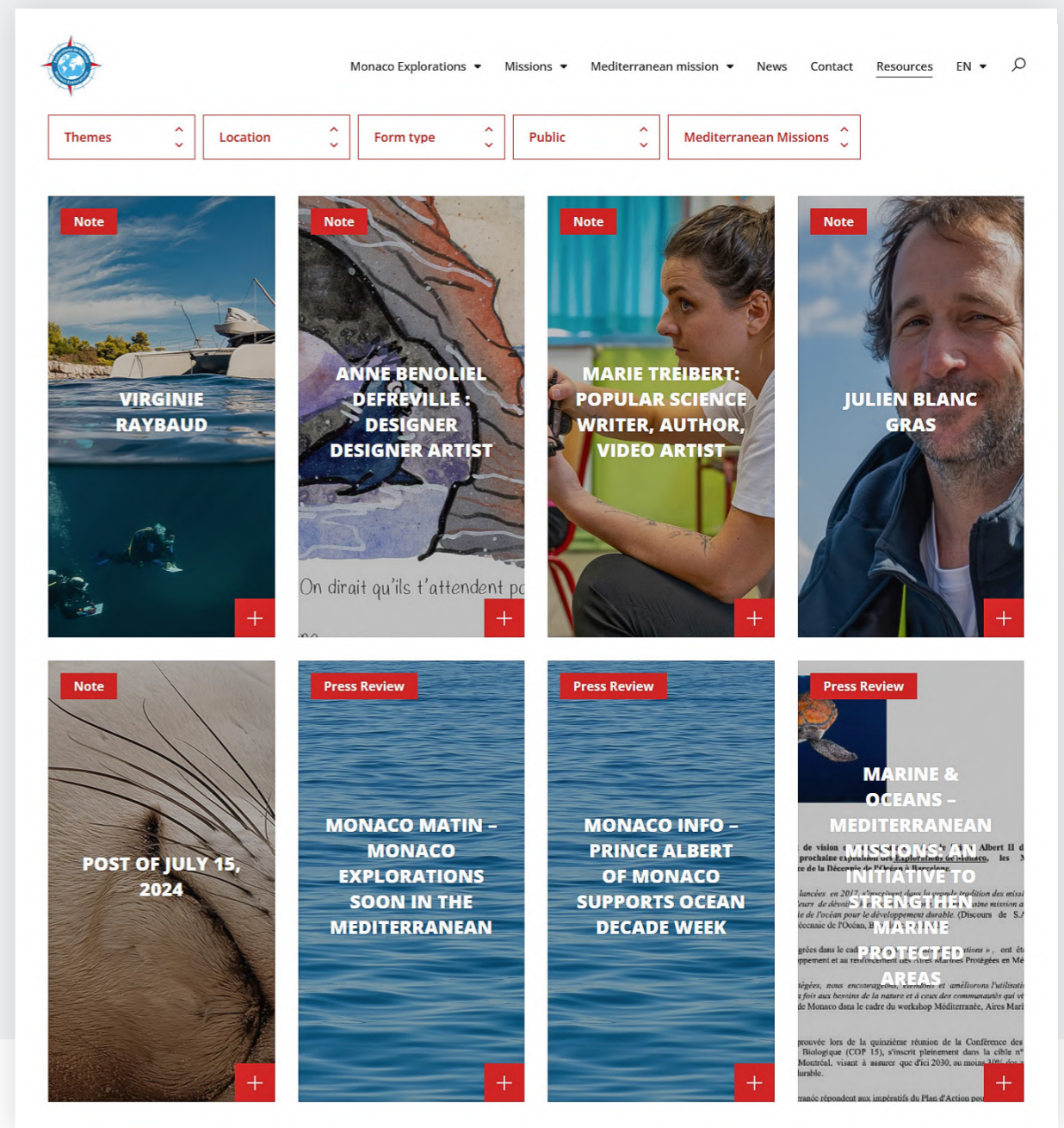
Through these various initiatives, Monaco Explorations aims to engage directly with the public – particularly younger generations – to provide them with the knowledge needed to understand marine issues and to foster a shared Mediterranean culture. Reconnecting people with the sea also means empowering them to become its stewards.

FOLLOWING THE MISSION ONLINE

To extend the mission experience beyond each port of call, Monaco Explorations will provide real-time updates via its social media channels and website. These platforms will be regularly updated with exclusive content, including interviews with scientists, profiles of engaged citizens, testimonies from MPA managers,

accounts of educational initiatives, and audiovisual reports from aboard the vessel. This digital logbook will enable audiences everywhere to follow the mission as it unfolds and to discover the inspiring initiatives emerging across the Mediterranean.

▼ Monaco Explorations website - Mediterranean Missions resources





WHO ARE WE ? MONACO EXPLORATIONS



Monaco Explorations lies at the crossroads of many of the issues that matter most to me and resonate deeply with my convictions. It is an endeavour that also echoes the finest traditions of the Principality and is addressed to all humanity.

H.S.H. Prince Albert II of Monaco

RECONCILING MANKIND AND THE SEA

Monaco Explorations, which coordinates the programme and the implementation of the Indian Ocean mission, is a platform serving the commitment of H.S.H. Prince Albert II of Monaco to advancing knowledge, sustainable management and the protection of the Ocean. Created at the initiative of the Government of the Principality of Monaco, this platform brings together the Prince Albert II of Monaco Foundation, the Oceanographic Institute of Monaco, the Scientific Centre of Monaco

and the Yacht Club de Monaco. It supports the actions of these institutions through international missions that combine high-level scientific research – providing the knowledge necessary for informed decision-making – with public outreach aimed at engaging, informing and mobilising a broad audience, particularly younger generations, and high-level political commitment to promote sound and sustainable management of natural environments.

The overall governance of Monaco Explorations is ensured by the Board of Directors of Monaco Explorations, chaired by Mr. Robert Calcagno, Director of Oceanographic museum of Monaco.

In recent years, together with numerous researchers, we have initiated, supported or funded a wide range of programmes across four key areas: the protection of megafauna, coral conservation, the development of new exploration technologies, and the study of Marine Protected Areas (MPAs).

H.S.H. Prince Albert II of Monaco
Man and the Ocean - Flammarion and Versilio, 2022.



ROBERT CALCAGNO : CHAIRMAN AND CHIEF EXECUTIVE OFFICER MONACO EXPLORATIONS

Robert Calcagno has been Director General of the Oceanographic Institute of Monaco, Foundation Albert I, Prince of Monaco, since 2009. In this capacity, he oversees both the Oceanographic Museum of Monaco and the Maison de l'Océan in Paris. Strongly committed to advancing a more sustainable and balanced society and to protecting the Ocean, he previously served as a Government Counsellor to H.S.H. Prince Albert II of Monaco and held the position of Minister of the Environment of the Principality from 2006 to 2009. He is the author of several works for the general public, including *Sea Turtles: The Great Odyssey*, *Jellyfish: Conquering the Ocean*, *Sharks: Beyond the Myth*, and *Corals: A Treasure to Protect*. As Managing Director of Monaco Explorations, he ensures, together with the Board of Directors, the consistency and relevance of the programme's actions in line with the Sovereign's international commitment to the Ocean.

△ Robert Calcagno © Thierry Ameller. Oceanographic Institute



XAVIER PRACHE : DIRECTOR OF MONACO EXPLORATIONS AND MISSION LEADER

Xavier Prache graduated from the French Naval Commissariat School in 1992 and spent his entire career in the French Navy. His professional path took him to La Réunion, Brest, Cherbourg, Toulon and Monaco, where he was seconded to the Principality to serve as aide-de-camp to H.S.H. Prince Albert II of Monaco between 2011 and 2012.

Following a career as a naval commissary, both at sea and ashore within headquarters and joint structures, he joined Monaco Explorations in September 2023.

△ Xavier Prache © Michel Dagnino. Monaco Explorations



FOUR MAJOR AREAS OF FOCUS:

FOUR GUIDING PRINCIPLES OF A LONG-TERM APPROACH

Since their launch in April 2017, Monaco Explorations has conducted numerous expeditions worldwide, all structured around four major areas of focus:

Map of Monaco Explorations missions worldwide since 2017 © Monaco Explorations



Protecting Megafauna

The first Monaco Explorations mission, conducted in Madeira in September 2017, focused on one of the most endangered marine mammals in the world. The critical situation of the Mediterranean monk seal (*Monachus monachus*) reflects the broader decline affecting large predator populations worldwide, both on land and at sea. Their study and protection have become essential to maintaining natural balances. The Principality of Monaco supports and develops numerous programmes worldwide to contribute to the long-term protection of megafauna and to provide the means necessary to achieve this goal. These include initiatives led by the Prince Albert II of Monaco Foundation for the protection of the Mediterranean monk seal and whale sharks, the recent opening of a marine turtle care centre at the Oceanographic Museum, and awareness campaigns targeting sea users.

Coral Conservation

From Hawaii to Palau, Eilat in Israel, the Mediterranean and even Norway, Monaco Explorations and its partners have made the study of coral reefs in tropical regions and deep-sea corals worldwide a priority. The Scientific Centre of Monaco is one of the global leaders in coral research and makes a major contribution to each Monaco Explorations mission in this field. This research effort forms part of the Principality's broader international policy for safeguarding marine biodiversity.

Monaco's co-chairing – until 2020, alongside Australia and Indonesia – of the International Coral Reef Initiative, the Coral Reef Protection Declaration launched by H.S.H. Prince Albert II of Monaco at the 2017 Our Ocean Conference, and the missions carried out or supported by Monaco Explorations and the Foundation all reaffirm the Principality's strong commitment to coral protection.

Developing Marine Protected Areas (MPAs)

Currently, 2.2% of the Ocean is under strict protection (areas where extraction is prohibited), while 7.68% is covered by Marine Protected Areas benefiting from specific protection regimes. International experts recommend extending protected areas to 30% of the Ocean by 2030.

The Principality of Monaco is actively involved at multiple levels. The Prince Albert II of Monaco Foundation supports numerous projects related to MPAs worldwide. In March 2019, the 10th edition of the Monaco Blue Initiative – an international meeting co-organised by the Oceanographic Institute and the Foundation – brought together leading experts on this critical issue. In the field, during expeditions, the scientific, environmental and educational projects supported by Monaco Explorations demonstrate the essential role played by MPAs in building a balanced, sustainable relationship between humanity and nature.

New Technologies

One of the objectives of the Principality and its Sovereign, through Monaco Explorations, is to foster the development of new technologies for exploring marine environments and biodiversity during missions. The aim is to improve the quality of field observations, facilitate sample collection, and gather more data under better conditions, while promoting non-invasive and low-impact methods. These tools are tested and deployed to advance knowledge of the Ocean and the living organisms it supports. Their implementation also relies on the development of partnerships and cooperation between the Monegasque State and numerous countries worldwide.

The development of cleaner navigation using the energy solutions of tomorrow is another area to which the Yacht Club de Monaco makes a significant contribution.



PARTNERS OF THE MONACO EXPLORATIONS PLATFORM



The determination of H.S.H. Prince Albert II of Monaco to promote the sustainable development of the Principality is reflected in the actions of His Government, whether in the preservation of biodiversity, resource management or the implementation of a climate and energy plan. The Prince's Government pursues an ambitious policy focused on biodiversity protection, energy efficiency and the reduction of plastic waste within the Principality. Its responsibilities also include the implementation of international conventions and agreements ratified by Monaco, such as the Kyoto Protocol and, more recently, the Paris Agreement. Monaco is also a longstanding Party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES¹), which establishes a permit system regulating international trade in endangered species.

Finally, the Principality actively contributes to the protection of the Mediterranean through, in particular, the RAMOGE Agreement, the Pelagos Agreement and the Barcelona Convention. It also hosts a number of international organisations dedicated to the study and protection of the marine environment, including ACCOBAMS² and the AIEA³ Marine Environment Laboratories.



The Prince Albert II of Monaco Foundation is an international non-profit organisation committed to protecting and advancing planetary health for present and future generations. Established by H.S.H. Prince Albert II of Monaco in 2006, the Foundation promotes a renewed relationship with nature and supports innovations capable of accelerating this transition. Its mission is to foster the development of effective solutions in the areas of biodiversity, climate, ocean and water resources. The Foundation operates across three main geographical areas: the Mediterranean basin, the polar regions and the least developed countries.



Founded in 1906 by H.S.H. Prince Albert I of Monaco, the Oceanographic Institute, Foundation Albert I, Prince of Monaco, has for over a century brought together scientists, policymakers, economic stakeholders, civil society and the general public around a single objective: to understand, protect and promote the Ocean.

A public-interest foundation in France, the Institute contributes – under the leadership of its Honorary President, H.S.H. Prince Albert II of Monaco – to Monaco's global commitment to the Ocean. Through its many national and international initiatives (conferences, exhibitions, educational programmes), it plays a central role in environmental outreach. Its activities are built on three pillars: its two institutions – the Oceanographic Museum of Monaco and the Maison de l'Océan in Paris – and a range of digital tools providing access to extensive resources, thereby facilitating exchange and extending the reach of the Ocean's voice.



The Scientific Centre of Monaco is dedicated to both fundamental and applied research. Its work is structured around three departments: Marine Biology, specialising in the study of corals and coral reefs; Polar Biology, focusing on penguin populations; and Medical Biology. The primary objective of its researchers is to study the fundamental functioning of living organisms in order to better understand and anticipate the effects of environmental stress (conservation physiology) and therapeutic treatments (translational research). The proximity of its research teams fosters dynamic exchanges, encouraging the emergence of new interdisciplinary approaches. Since relocating to its current premises on Quai Antoine 1^{er} in 2013, the Centre has attracted more than 70 researchers from 15 countries, including across Europe, the United States, Japan, Australia, New Zealand, Palau, Brazil, the Caribbean, Canada, Oman and Saudi Arabia.



Founded by H.S.H. Prince Rainier III in 1953 and chaired by H.S.H. Prince Albert II of Monaco since 1984, the Yacht Club de Monaco is a private members' club bringing together 2,500 members from 81 nationalities, united by shared values expressed in its motto: "One Spirit, One Team, One Club".

In accordance with its statutes, the Club also fulfils a public service delegation role, notably as an organiser of port operations and a catalyst for all yachting-related initiatives in the Principality.

Monaco has long been a leading destination for yachting. Preserving a distinctive "Art de Vivre la Mer" (Seafaring lifestyle), protecting the environment, honouring maritime heritage and promoting the most advanced technologies are central to the Club's mission. Through its "La Belle Classe" label and beyond its membership base, the Yacht Club brings together yacht owners and industry stakeholders, offering a platform for dialogue and exchange.

The Club contributes to Monaco's international profile with a strong commitment to environmental preservation. Through the "Monaco, Capital of Advanced Yachting" initiative, it aims to position the Principality as a key destination for superyachting, highlighting cutting-edge innovations.

1* CITES : Convention on International Trade in Endangered Species of Wild Fauna and Flora.
2* ACCOBAMS : Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area.
3* AIEA : International Atomic Energy Agency.



MONACO EXPLORATIONS
Reconnecting Humanity and the Sea

PRESS KIT
SEPTEMBER 2025

GREECE MISSION

OCTOBER 2025

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