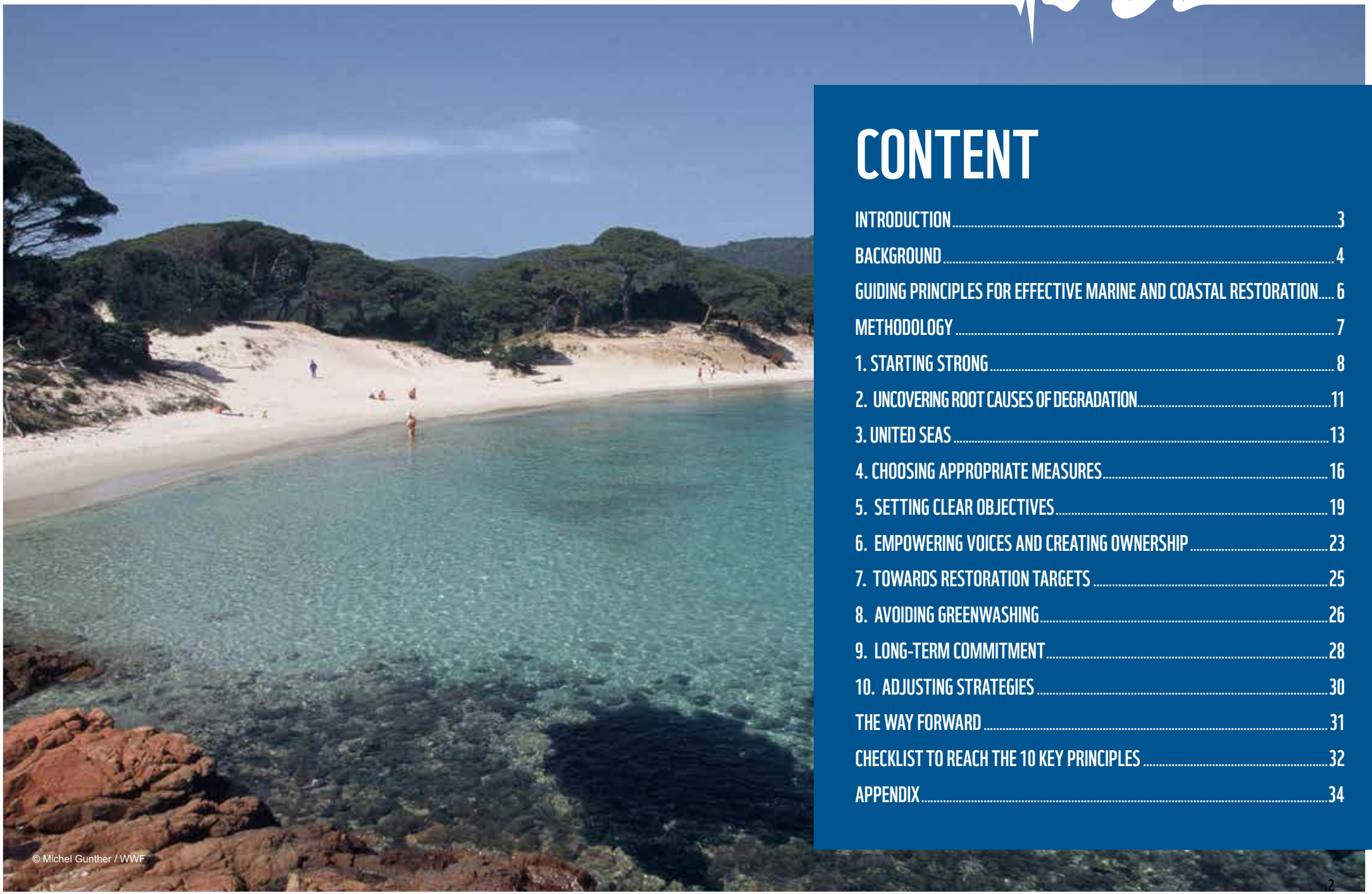
10 KEY PRINCIPLES FOR EFFECTIVE MARINE AND COASTAL RESTORATION

SETTING THE SCENE FOR SUCCESS IN THE MEDITERRANEAN

ONE PULSE AT A TIME.



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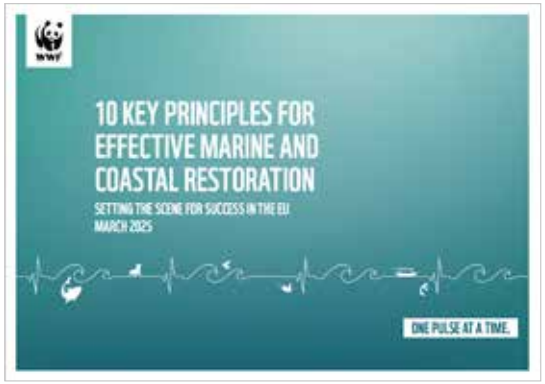
INTRODUCTION

THIS REPORT IS ADAPTED FROM AND SHOULD BE READ IN CONJUNCTION WITH THE REPORT PRODUCED BY THE WWF EUROPEAN POLICY OFFICE:

10 KEY PRINCIPLES FOR MARINE AND COASTAL RESTORATION – SETTING THE SCENE FOR SUCCESS IN THE EU.



Our seas provide us with invaluable benefits every day, keeping the pulse of our planet and people in check. They are crucial in mitigating climate change, boosting our health and well-being and providing livelihoods for coastal communities. But with vital marine habitats like seagrass meadows, wetlands and estuaries disappearing in the Mediterranean, the pulse of our seas drops – and in turn, they increasingly struggle to sustain the benefits they bring to people. They need our support, more than ever.

This report presents international and regional commitments for ecosystem restoration and identifies key principles for successful marine and coastal restoration, based on real examples of best practices across the Mediterranean. It makes marine restoration easier to navigate through numerous case studies and a comprehensive step-by-step checklist. While there are so far only a limited number of completed marine restoration projects in the region, the projects identified in this publication closely follow the 10 key principles it outlines.

The report is intended for policymakers, marine planners and donors, ocean economy stakeholders, and all individuals and organizations engaged in marine and coastal restoration. By combining scientific insights with practical guidance, it aims to support informed decision-making, foster collaboration across sectors, and promote sustainable, evidence-based restoration efforts that enhance the resilience and health of our ocean and coastlines.

It's time to revive the Mediterranean Sea, one pulse at a time!

BACKGROUND

AN ASSESSMENT OF CUMULATIVE IMPACTS FROM

22

ANTHROPOGENIC DRIVERS ON

17

MARINE ECOSYSTEMS FOUND THAT APPROXIMATELY

20%

OF THE MEDITERRANEAN BASIN IS HEAVILY IMPACTED ACROSS SUBREGIONS AND TERRITORIAL SEAS

Mediterranean marine ecosystems and species are facing substantial pressures, including intensive fishing, maritime traffic, marine litter, the spread of invasive alien species, underwater noise, and the combined effects of various pollutants. An assessment of cumulative impacts from 22 anthropogenic drivers on 17 marine ecosystems found that approximately 20% of the Mediterranean basin is heavily impacted across subregions and territorial seas (Figure 1).[1] Biodiversity in Mediterranean waters is declining,[2] which is not just an environmental concern but also a societal challenge. It endangers the health of millions of people, the livelihoods of coastal communities who directly depend on marine resources, and the ecosystem services our seas and ocean can provide.

Both the EU's Ocean State report and the Integrated Monitoring and Assessment Programme (IMAP) Quality Status Report (Decision IG.26/3) highlight that the effects of climate change and species declines are exacerbated in the region, with the marine ecosystem shifting rapidly to more acidic and hotter waters that foster the occurrence and spread of diseases and invasive species. Existing knowledge gaps and limited data-sharing initiatives contribute to these issues, hindering effective mitigation and restoration efforts.

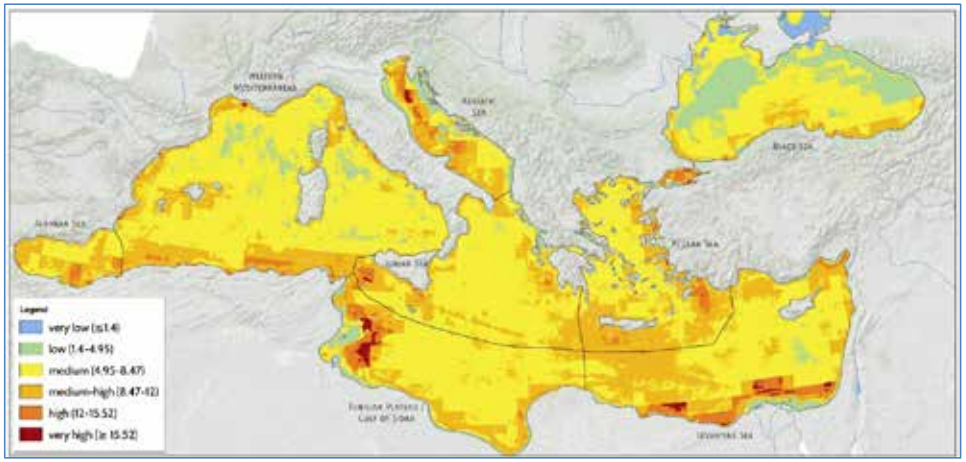


Figure 1. Spatial distribution of cumulative impacts on marine ecosystems in the Mediterranean and Black Sea, adapted from Micheli et al. (2013), with colours indicating different categories of impact (see legend).

1 Micheli, Fiorenza et al. (2013). Cumulative human impacts on Mediterranean and Black Sea marine ecosystems: assessing current pressures and opportunities. *PloS one 8*, 12: e79889. https://doi.org/10.1371/journal.pone.0079889

2 Galewski, T. et al. (2021). *Living Mediterranean Report–Monitoring species trends to secure one of the major biodiversity hotspots.* Tour du Valat, France. https://doi.org/10.13140/RG.2.2.15878.29763

‘Ecosystem restoration’ means “assisting in the recovery of ecosystems that have been degraded or destroyed, as well as conserving the ecosystems that are still intact”.[3]

To date, efforts to effectively protect and restore marine ecosystems and biodiversity have progressed too slowly. Only 8.8% of the Mediterranean Sea is currently designated as marine protected areas (MPAs). The vast majority of these – 97.4% – are in EU waters, showing a clear imbalance in conservation across the region.[4] Expanding and strengthening MPAs is crucial to protect marine habitats and species from growing human activities and climate impacts, and to achieve regional targets for ecosystem restoration and recovery.

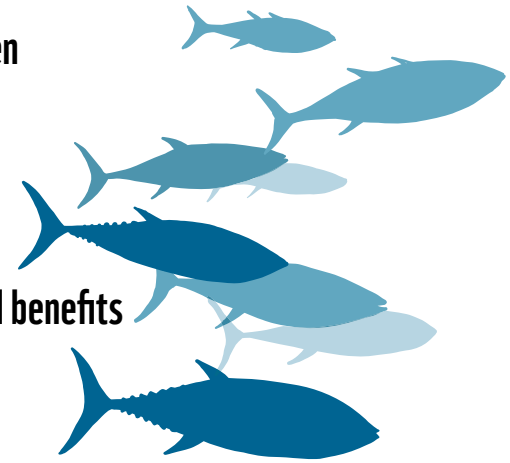
This publication is designed to assist Mediterranean countries in the effective implementation of their restoration efforts. By outlining key criteria that restoration projects should include, it supports policymakers and project managers in the process of planning and executing national- and regional-level restoration plans.

3 As adopted from the UN Decade on Ecosystem Restoration under the CBD for Target 2. CBD/WG2020/5/4 (November 2022). UPDATED GLOSSARY FOR THE DRAFT POST-2020 GLOBAL BIODIVERSITY FRAMEWORK. https://www.cbd.int/doc/c/c3ab/388d/950ddc02586468a814120acf/wg2020-05-04-en.pdf

4 Gallon et al. (2025). Assessing the Progress and Effectiveness of Marine Protected Areas in the Mediterranean: A Decade of Insights. MEDPAN poster at the One Ocean Congress, Nice 2025.

GUIDING PRINCIPLES FOR EFFECTIVE MARINE AND COASTAL RESTORATION

1. **STARTING STRONG:** Use baseline studies to identify a reference point for a healthy ecosystem and assess restoration needs
2. **UNCOVERING ROOT CAUSES OF DEGRADATION:** Identify ecosystem threats and drivers for the planning process
3. **UNITED SEAS:** Scale up regional dialogue with connectivity mapping and transboundary cooperation
4. **CHOOSING APPROPRIATE MEASURES:** Prioritize passive restoration where ecosystems have the potential to recover naturally without direct interventions
5. **SETTING CLEAR OBJECTIVES:** Define restoration targets and related measures for success, and identify potential barriers
6. **EMPOWERING VOICES AND CREATING OWNERSHIP:** Stakeholder engagement through inclusive governance, open communication and partnerships at regional, national and local level
7. **TOWARDS RESTORATION TARGETS:** Monitor progress for tangible improvement and results
8. **AVOIDING GREENWASHING:** Align planning with existing policies and close policy gaps to prevent failure
9. **LONG-TERM COMMITMENT:** Secured financing and non-deterioration strategies to maintain economic and social benefits
10. **ADJUSTING STRATEGIES:** Adaptive management in an era of climate change and evolving conditions

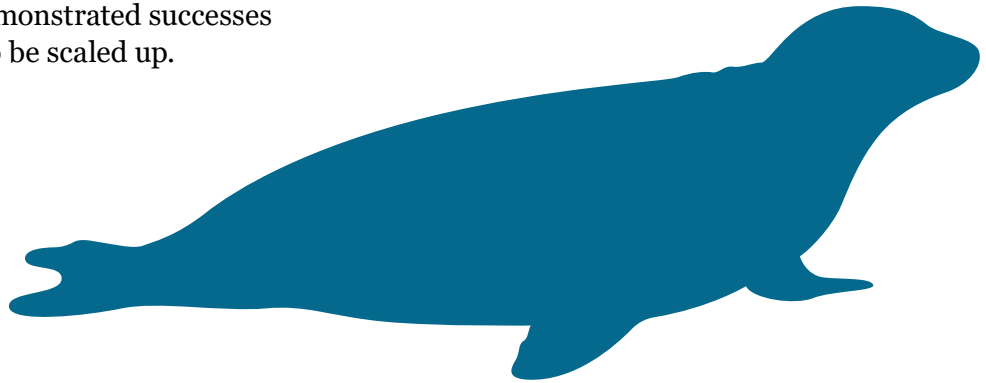


METHODOLOGY

Based on peer-reviewed literature concerning restoration in marine and coastal areas, and by examining WWF's existing marine restoration projects across the EU and Mediterranean region, we have developed key principles for efficient restoration. Collectively, they provide a framework for planning, implementing and evaluating marine ecosystem restoration projects, ensuring that restoration interventions are effective, sustainable and scientifically sound.

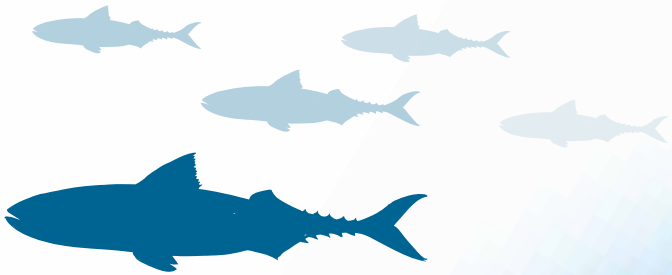
Marine and coastal restoration is a relatively new area, and data can be fragmented and difficult to compare across different projects. Some projects have only started recently, with their intended results yet to manifest, and for some it will take many years before the outcomes become evident and comparable with others. However, many projects have already demonstrated successes and have the potential to be scaled up.

As such, the principles presented in this publication should not be taken as exhaustive or complete, but should be considered a starting point – the 'must have' – for successful restoration projects based on current best practices. As more nature restoration projects get underway, and with improved reporting mechanisms as stipulated in the Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region (Post-2020 SAPBIO), these and other guidelines for effective restoration may need to be updated.



1. STARTING STRONG: USE BASELINE STUDIES TO IDENTIFY A REFERENCE POINT FOR A HEALTHY ECOSYSTEM AND ASSESS RESTORATION NEEDS

Before planning restoration projects and measures, it is fundamental to identify degraded areas in need of restoration and understand site conditions through a comprehensive assessment. A 'baseline' assessment should encompass not only the ecological characteristics of the site but also its economic, social and cultural dimensions. A scoping study and baseline assessment are crucial to determine the current degree of ecosystem degradation, socioeconomic dependencies and vulnerabilities. This assessment should be informed by the best available science. Where data gaps exist, historical information and shared expert and local knowledge can help to determine a reference point for a healthy ecosystem in support of human well-being.



A reference point is the desired conditions and targets for individual restoration projects for future monitoring.

In the Mediterranean, where baseline data is often limited and incomplete, a valid alternative to a historical or modelled reference point could be a reference site that can inform and guide restoration efforts.

A reference site is an area that closely mirrors the environmental conditions of the site targeted for restoration but has undergone little to no human-induced disturbance. When possible, using multiple reference sites can provide a more accurate representation of the average conditions – and the natural range of variability – that the restoration site would have exhibited in the absence of degradation. A challenge that both scientists and decision-makers face in relation to these reference conditions is an undetected shift over time due to global drivers of change.[5]

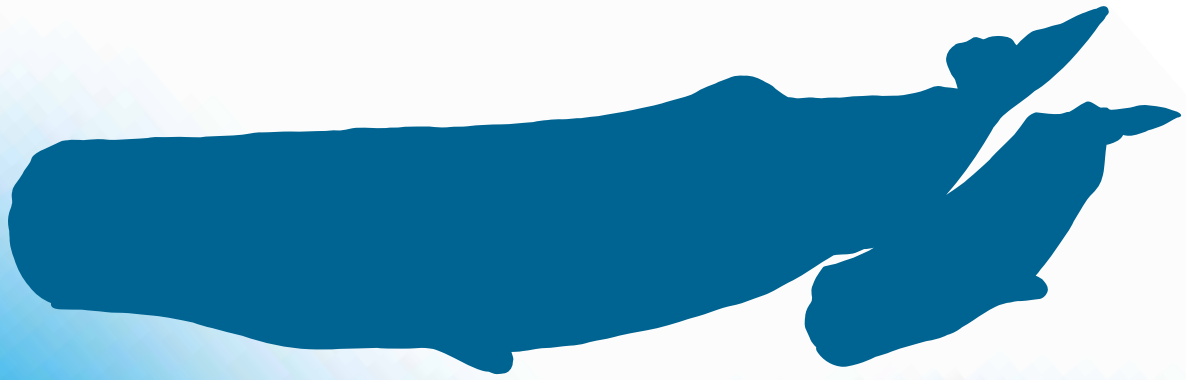
Baseline data collection must be undertaken based on available science by assessing existing environmental conditions.

5 Jones, L.P. et al. (2020). Investigating the implications of shifting baseline syndrome on conservation. *People and Nature*, 2, 4: 1131-1144. https://doi.org/10.1002/pan3.10140

The Post-2020 SAPBIO provides a timeline for Parties to the Barcelona Convention to develop national inventories of sites in need of restoration. Baseline assessments should consider species present on site, the state of habitats potential connectivity, water properties (chemical and physical), and any degradation issues. Understanding the dependencies and vulnerabilities of coastal communities is also of crucial importance in a region where people's livelihoods, culture and future survival are inevitably connected to the sea.

Historical data, including local knowledge, must be considered to close information gaps, as irreversible impacts such as local extinctions and habitat loss may have occurred in previous decades. Gathering people's knowledge to address any remaining gaps is crucial, especially at sea where many ecosystems have only been explored relatively recently.

Historical data prevents the so-called 'shifting baseline syndrome', where each new generation considers already degraded ecosystems to be normal. For instance, in the marine environment the size of the fish caught decades ago or the species that used to be present in the area can provide indicators of population health and habitat losses.



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Croatia, Cyprus, France, Greece, Italy, Malta, Spain, Tunisia, Türkiye

RESTORING COASTAL HABITATS: WETLANDS, A NATURAL SOLUTION TO CLIMATE CHANGE AND ECONOMIC RESILIENCE

Restoring Mediterranean Wetlands: a new policymaker's playbook for sustainable management and ecosystem restoration by 2030

Wetlands, often undervalued, provide vital ecosystem services. Globally, they store 40% of the world's carbon, manage water supplies, and act as buffers against extreme weather events such as floods and droughts, potentially saving trillions of dollars annually in damage costs. Their conversion to other land uses (for instance for agricultural use) also has a high price as it transforms these carbon sinks into carbon sources, amplifying climate change impacts.

Rehabilitating wetlands not only supports biodiversity and water quality but also revitalizes degraded landscapes crucial for agriculture, fishing and local economies. Restoring wetlands enhances their natural capacity to adapt to and mitigate climate change, offering a cost-effective, long-term solution for ecological and economic resilience in the face of global challenges.

In the Mediterranean, climate change is exacerbating wetland degradation, with rising temperatures, reduced rainfall and more frequent extreme weather events threatening their ecological integrity. To tackle these challenges, the MedIsWet project chose a network of wetlands to restore in the region. Restoring these habitats could significantly enhance their role in capturing carbon, filtering pollutants and strengthening climate resilience.

MedIsWet partners conducted wetland inventories across Mediterranean islands, visiting over 1,800 sites and uploading data to open-access national databases. The initiative fostered significant interest across the Mediterranean basin, building strong relationships with local stakeholders to support conservation and prioritise restoration efforts.

2. UNCOVERING ROOT CAUSES OF DEGRADATION: IDENTIFY ECOSYSTEM THREATS AND DRIVERS FOR THE PLANNING PROCESS

When planning marine or coastal restoration measures and determining which habitats should be prioritized in their national inventory, Mediterranean coastal states need to understand the causes of habitat or ecosystem decline, such as the different pressures coming from human activities, invasive species or climate change.

Without baseline data on species and habitats (Principle 1), as well as an understanding of the underlying threats and drivers of degradation, it is impossible to establish clear success criteria, set realistic targets, or effectively measure recovery.[6]

Uncovering the root causes of degradation to identify threats and drivers for the planning process is essential. However, understanding that overfishing impacts many fish species or that pollution harms benthic habitats is only a starting point. A systematic threat analysis goes further – it examines the underlying drivers of change, cumulative impacts, and multiple levels of effect (e.g. physiological, reproductive, behavioural and habitat-related) across different timescales.[7]

Marine and coastal connectivity across different habitats must also consider land-sea interactions, since activities on land significantly impact marine environments, especially through rivers and freshwater systems. A well-known example is nutrient runoff from agriculture, which affects rivers and, consequently, coastal waters. Restoration planning must consider these connections – particularly species migration, sediment flow and pollution sources – to support lasting ecosystem health from rivers to seas. This aligns with existing processes such as ecosystem-based maritime spatial planning, which should include a comprehensive examination of land-sea interactions.[8]

RESOURCE

JPI Oceans (2024). *A common handbook: Cumulative effects assessment in the marine environment*. https://dx.doi.org/10.48470/77

6 McClenachan, L., Ferretti, F. & Baum, J.K. (2012). From archives to conservation: why historical data are needed to set baselines for marine animals and ecosystems. *Conservation Letters 5*, 5: 349-359. https://doi.org/10.1111/j.1755-263X.2012.00253.x ; Fraschetti, Simonetta et al. (2021). Where is more important than how in coastal and marine ecosystems restoration. *Frontiers in Marine Science*, 8: 626843. https://doi.org/10.3389/fmars.2021.626843

7 Micheli, Fiorenza et al. (2013). Cumulative human impacts on Mediterranean and Black Sea marine ecosystems: assessing current pressures and opportunities. *PloS one*, 8, 12: e79889. https://doi.org/10.1371/journal.pone.0079889; Madliger, C.L. et al. (2022). Physiology as a tool for at-risk animal recovery planning: An analysis of Canadian recovery strategies with global recommendations. Conservation Science and Practice, 4, 6: e12701. https://doi.org/10.1111/csp2.12701

8 Article 7 of the ICZM protocol entails general principles for planning.

9 EU BlueMissionMed. (2025). *Depolluting the Mediterranean: A 2030 roadmap for key economy sectors to fulfil the EU Mission to 'Restore our Ocean and Waters' through Innovative and Transformative Solutions*. https://www.wwf.mg/?18373941/Ambitious-roadmap-to-reduce-pollution-in-the-Mediterranean-Sea

Pollution and nutrient runoff are drivers of degradation, but the root cause of these can be linked to policy and societal norms. In June 2025, WWF launched a new roadmap to reduce pollution in the Mediterranean that can inform this step in the planning process and assist in the development of measures (Principle 4).[9]

While dealing with root causes may be beyond the scope of restoration efforts, it may still be possible to address the effects. For example, there is growing evidence that top-down control by predatory fish can reduce local effects of eutrophication.[10] Similarly, restoring or constructing wetlands to serve as natural nutrient filters can improve water quality and reduce eutrophication in coastal areas downstream.[11]

Restoration projects must assess drivers and root causes of degradation in the planning phase, and the project design must address them directly or indirectly or overcome their effects. In general, we recommend establishing highly protected, representative scientific reference areas because they are a valuable aid in untangling the impacts of multiple stressors in a given sea basin.

10 Donadi, S. et al. (2017). A cross-scale trophic cascade from large predatory fish to algae in coastal ecosystems. *Proceedings of the Royal Society B: Biological Sciences,* 284, 1859: 20170045. https://doi.org/10.1098/rspb.2017.0045; Östman, Ö. et al. (2016). Top-down control as important as nutrient enrichment for eutrophication effects in North Atlantic coastal ecosystems. *Journal of Applied Ecology,* 53, 4: 1138-1147. https://doi.org/10.1111/1365-2664.12654

11 Paludan, C. et al. (2002). Wetland management to reduce Baltic Sea eutrophication. Water Science and Technology, 45, 9: 87-94.

3. UNITED SEAS: SCALE UP REGIONAL DIALOGUE WITH CONNECTIVITY MAPPING AND TRANSBOUNDARY COOPERATION

Marine ecosystems know no borders and are interconnected through food webs, nutrient cycles, energy transitions, inter- and intraspecies relationships, and movements, including migration corridors. Such interlinkages extend across national frontiers and from shallow waters to the deepest, darkest parts of the Mediterranean basin: transboundary cooperation and connectivity mapping will be essential components of any successful restoration plan.

The long-term success and viability of restoration efforts depend on coherent and coordinated actions among Mediterranean countries. Dialogue at the regional level makes restoration outcomes stronger, inclusive and more sustainable.

Before any marine restoration decisions are made, it is crucial to engage in consultations across maritime territories. The selection and prioritization of species, habitats and areas for restoration should be considered in a broader spatial context, often across entire seascapes, to promote ecological connectivity.

The Conservation of Migratory Species (CMS) defines ecological connectivity as *"the unimpeded movement of species and the flow of natural processes that sustain life on Earth"*.[12] In the context of ecological restoration this includes the connection of habitats and species along migration pathways and processes that connect the deep sea to the upper pelagic zones and coastal ecosystems.

When choosing sites for restoration, it is important to prioritize recovery of native species since they are usually already well adapted to local conditions, meaning they are more likely to thrive and support the restoration of wider ecosystem functions and resilience. However, effective restoration goes beyond individual species or habitats. Projects should aim to restore the integrity and functionality of the entire ecosystem within a given seascape, including species interactions, climate resilience, habitat connectivity and ecological processes. A single species is often not a good indicator of the health of an ecosystem, which contains many species and communities with complex interrelationships and functional properties.

It is the combined results of all of these which make up an ecosystem, and which together are responsible for providing so-called ecosystem services, such as food, carbon sequestration, coastal protection against storm surges, and more. Strategic site selection is crucial for maximizing restoration effectiveness.[13]

12 UNEP/CMS Resolution 12.26 (Rev.COP13)

13 Lester, S.E. et al. (2020). Spatial planning principles for marine ecosystem restoration. *Frontiers in Marine Science*, 7: 328. https://doi.org/10.3389/fmars.2020.00328

Mapping potential priority habitats and areas with high recovery potential serves as a powerful tool to guide these efforts. For such maps to be effective, they must be based on the best available data and updated as new information emerges; consider habitat connectivity and species distributions; identify options for recovery networks; reflect natural processes; and remain clear, accessible, and easily interpretable for all stakeholders.

A project situated near a national border is unlikely to succeed if it does not address threats from neighbouring waters. Cross-border collaboration ensures that restoration actions are not isolated and can contribute to ecosystem resilience, and it underpins efforts on larger scales such as those targeting migration corridors or ecologically connected MPAs. Regional sea conventions such as the Barcelona Convention and its regional activity centres, as well as regional fisheries management bodies (the GFCM and ICCAT), are instrumental in facilitating cross-border cooperation and aligning national restoration efforts with regional objectives.

Aligning fisheries management processes, conservation efforts, spatial planning and the development of a Sustainable Blue Economy can support effective restoration and help to ensure long-term success.

The MEDSEAPLAN project launched in May 2024 (running until May 2027) aims to help countries with their information needs to enable better spatial planning. The project is led by a consortium of research institutes, universities, enterprises and institutions from several Mediterranean and Northern European countries (Spain, France, Cyprus, Türkiye, Italy, Malta, the Netherlands and Germany). Through an inclusive multi-sector, multi-actor and cross-border approach, the aim is to create innovative methods for data collection, integrating nature-based solutions and using scenario modelling, to inform the future of the Mediterranean region's blue economy.[14]

Marine restoration projects are deeply embedded in larger ecological, cultural and socioeconomic landscapes, meaning activities beyond the immediate restoration area can significantly influence their success.[15] **Sharing best practices and aligning strategies across regional sea basins can allow Mediterranean coastal states to scale up projects and pool resources to strengthen marine ecosystem resilience and enhance the overall impact of restoration initiatives.**

14 See: https://bluepartnership.eu/projects/data-and-scenarios-sustainable-mediterranean-blue-economy

15 Nelson, C.R. et al. (2024). *Standards of practice to guide ecosystem restoration – A contribution to the United Nations Decade on Ecosystem Restoration 2021-2030.* Rome, FAO, Washington, DC, SER & Gland, Switzerland, IUCN CEM. https://doi.org/10.4060/cc9106en

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SEAGRASS CAPTURES CARBON UP TO

35 TIMES FASTER

THAN TROPICAL RAINFORESTS,

ACCOUNTING FOR

10 % OF THE OCEAN'S CAPACITY TO STORE CARBON, DESPITE OCCUPYING ONLY

0.2% OF THE SEA FLOOR.

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France, Greece, Tunisia and Türkiye

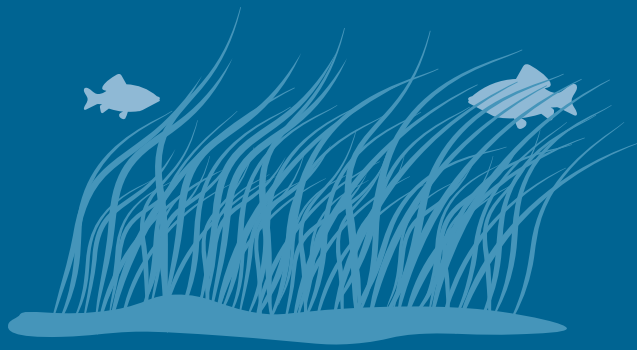
RESTORING BLUE FORESTS IN THE MEDITERRANEAN (WWF INITIATIVE)

The Mediterranean Blue Forests project, a cross-border initiative led by WWF and launched in 2023, aims to restore seagrass ecosystems in France, Greece, Tunisia and Türkiye which are threatened by human factors such as fishing, damage from leisure boat anchoring, and nutrient pollution.

These unique ecosystems are estimated to hold over half of the region's seagrass cover and are crucial for carbon sequestration, biodiversity, and supporting the livelihoods of coastal communities. Seagrass accounts for 10% of the ocean's capacity to store carbon, so-called 'blue carbon', despite occupying only 0.2% of the sea floor, and it can capture carbon from the atmosphere up to 35 times faster than tropical rainforests.[16] Working through the Mediterranean Posidonia Network, the project aims to align restoration strategies and share best practices to maximize regional impact.

The initiative focuses on advocating for policies to protect seagrass ecosystems, fostering regional cooperation, implementing protective measures and developing solutions to reduce harmful practices. It also seeks to diversify local incomes and test blue carbon finance mechanisms to scale up conservation and restoration efforts.

By 2027, the project aims to restore or improve the health of at least 150,000 hectares of seagrass while reducing coastal communities' dependence on activities that harm these ecosystems.



16 Fourqurean, J.W. et al. (2012). Seagrass ecosystems as a globally significant carbon stock. Nature geoscience, 5,7: 505-509. https://doi.org/10.1038/ngeo1477 ; Mcleod, E. et al. (2011). A blueprint for blue carbon: toward an improved understanding of the role of vegetated coastal habitats in sequestering CO2. *Frontiers in Ecology and the Environment*, 9, 10: 552-560; Serrano, O. et al. (2021). Seagrass blue carbon stocks and sequestration rates in the Colombian Caribbean. *Scientific Reports*, 11,1: 11067. https://doi.org/10.1038/s41598-021-90544-5

4. CHOOSING APPROPRIATE MEASURES: PRIORITISE PASSIVE RESTORATION

Once the root causes of ecosystem degradation are identified, restoration projects must implement targeted measures to reduce the negative impacts of human activities. This is where passive and active restoration approaches come into play. Designing effective restoration measures also requires transdisciplinary approaches.

Passive restoration focuses on halting harmful human activities, allowing ecosystems to recover naturally over time. In contrast, active restoration involves direct human interventions, such as replanting vegetation, introducing juveniles or removing invasive species.[17] In marine ecosystems, passive restoration often shows greater benefits, but balancing both approaches can maximize long-term sustainability and ecological resilience.[18] Passive restoration should be prioritized as it often offers a more cost-effective[19] and sustainable path: rather than relying solely on active interventions, we should focus first on the reduction of human pressures like pollution, physical disturbance and over-exploitation.

Scaling back damaging activities gives ecosystems the space to regenerate naturally, avoiding the risk of restoration areas being mere 'paper parks' without any specific measures in place, or only weak ones. We are already witnessing success in marine projects where seagrass meadows left to recover naturally not only regenerate more quickly but also reduce local economic dependence on environmentally harmful practices.

However, in some instances, passive restoration is not enough. Active restoration can be a key tool where ecosystems have been severely degraded or are beyond the natural recovery threshold, such as in areas with significant habitat loss or where populations of a species have been critically diminished. In these situations, direct interventions like replanting seagrass or other vegetation or establishing biogenic reefs are necessary to jumpstart recovery.

Recent experience with the restoration of threatened species – such as the fan mussel *Pinna nobilis*, which has undergone a mass mortality event over the past few years – have demonstrated that both active and passive interventions at a regionally coordinated level are needed to combat increasing pressures and prevent species extinction.[20]

17 Reference in the Nature Restoration Law, Annex VII: "List of Examples of Restoration Measures Referred to in Article 14(16)"

18 Jones, H.P. et al. (2018). Restoration and repair of Earth's damaged ecosystems. *Proceedings of the Royal Society B: Biological Sciences*, 285, 1873: 20172577. https://doi.org/10.1098/rspb.2017.2577

19 Kraufvelin, P. et al. (2021). Restoration measures for coastal habitats in the Baltic Sea: cost-efficiency and areas of highest significance and need. *HELCOM ACTION*.

20 Smith, C.J. et al. (2021). Marine restoration in the Mediterranean: red coral and fan mussel discourses, uncertainty and reaching restoration targets. *Marine Policy*, 128: 104488. https://doi.org/10.1016/j.marpol.2021.104488

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Looking ahead to the next decade, successful coastal habitat restoration will demand a truly transdisciplinary approach – bringing together expertise from engineering, modelling, ecology, chemistry, hydrology, social sciences including economics, finance, project planning and governance, and integrated land and sea spatial management. Coastal ecosystems are at least as intricate as terrestrial ones, plus they are often more dynamic, facing the compounded challenges of ongoing shoreline development, biodiversity loss and environmental degradation (such as declining water quality), and the multifaceted impacts of climate change.

Where possible, passive restoration should be prioritized as it offers a more cost-effective, swift and sustainable path. While active restoration can be effective, it is important to carefully assess when and where it is appropriate, ensuring that it complements passive strategies to support long-term ecological health.

21 Waltham, N.J. et al. (2020). UN decade on ecosystem restoration 2021–2030 – what chance for success in restoring coastal ecosystems? *Frontiers in Marine Science*, 7: 71. https://doi.org/10.3389/fmars.2020.00071

1995 – 2022

FISH SIZE HAS INCREASED **1.5x**

MEAN WEIGHT HAS INCREASED **2.9x**

THE FISHING YIELD HAS INCREASED **7x**

111 G **321 G**

1995 **2022**

Long term monitoring of fish assemblages in marine reserve of Couronne. Results of experimental fishing (4 x 500m trammel net)

France: Côte Bleue Marine Park

SUCCESSFUL PASSIVE RESTORATION WITHIN NO-TAKE ZONES: CÔTE BLEUE MARINE PARK

Established in 1983 in the northwest Mediterranean close to Marseille, France, the Côte Bleue Marine Park is an MPA and part of the Natura 2000 network, spanning 9,873 hectares and 42km of rocky coastline. It has become a model of marine conservation and restoration, built on collaboration between local authorities and small-scale fishers.

The Côte Bleue Marine Park covers two strictly protected no-take zones – Carry-le-Rouet (85 hectares, established in 1983) and Cap Couronne (210 hectares, established in 1996) – where fishing, dredging, anchoring and scuba diving are prohibited. These measures have allowed the ecosystem to passively restore itself, while active restoration efforts, including artificial reefs and 17.5km of protective barriers, have supported fish stocks and safeguarded sensitive habitats like seagrass meadows and coralligenous reefs. Together, these actions have led to the recovery of fish populations, benefitting both biodiversity and fisheries by increasing the number, size and variety of local species.

The involvement of local stakeholders was a crucial component of the marine park's success story. For example, involving fishers in management and monitoring has ensured that artisanal fishing activities are sustainable. Several studies have shown the tangible effects of this co-management, with the 'reserve effect' (i.e. the increase in fish size, density and biomass as well as species richness)[22] being demonstrated by the return of the dusky grouper as well as the brown meagre fish in no-take areas. The fishing yield has also increased sevenfold since the creation of the no-take reserve of Couronne.

As a result, fishers have a more positive view of management measures, as these species also leave the no-take areas and become available to the fishing community. The wider community has also benefited from educational discovery courses, which are organized to explore the marine area and local fishery. Local public authorities and professional fishers have committed to work together to maintain long-term maritime economic activities.

22 Medpan. (2024). MPA Success story: No-take zones has been created within the marine park of the Côte Bleue by fishermen to restore biodiversity and resources. https://medpan.org/en/resource-center/mpa-success-story-no-take-zones-has-been-created-within-marine-park-cote-bleue

5. SETTING CLEAR OBJECTIVES: DEFINE RESTORATION TARGETS FOR NATURE AND PEOPLE, MEASURES FOR SUCCESS, AND POTENTIAL BARRIERS

Defining clear and well-structured objectives and targets is essential for enhancing habitat conditions, species diversity and ecosystem services in restoration projects. These objectives and targets should align with the SMART criteria (Specific, Measurable, Achievable, Relevant and Time-bound) to ensure the project is designed for effective implementation and long-term success. Recovery efforts should integrate both ecological objectives (e.g. ensuring connectivity among populations) and social objectives (e.g. developing a business plan for long-term stewardship) to minimize the likelihood of failure.[23]

An objective is a clear statement that defines the short- and medium-term changes in a strategic plan that are needed to achieve the restoration targets; while a restoration target refers to an ecological, socioeconomic or cultural element chosen as the focal point of a recovery plan or implementation strategy, serving as a benchmark for measuring progress.

Setting measurable goals can guide restoration efforts through all stages, from design and development to monitoring and evaluation. Targets can also be compared against baseline conditions (environmental as well as socioeconomic), enabling progress to be measured.

Best practices for developing restoration targets include:

- Co-design with key partners and stakeholders, including local communities.
- Deliver both environmental and community gains.
- Set short-, medium- and long-term targets.
- Consider data availability, needs, and dependencies to monitor outcomes.

Scientific knowledge plays a critical role in shaping restoration targets. Optimal planning requires a solid understanding of the current ecological conditions of the project site and socioeconomic dependencies as the first step (see Principle 1). Where complete data is unavailable, consultation with experts and stakeholders can fill in gaps without delaying the process.

RESOURCE

Guidebook for assessing and improving social equity in marine conservation https://portals.iucn.org/library/node/52587

23 Abelson, Avigdor et al. (2020). Challenges for restoration of coastal marine ecosystems in the Anthropocene. *Frontiers in Marine Science*, 7: 544105. https://doi.org/10.3389/fmars.2020.544105


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Another aspect of good planning is timing. Studies show that recovery time varies widely among species and habitats, depending on biological traits and environmental conditions. Long-lived species, those with small or fragmented populations, or those under persistent threats often face the greatest recovery challenges.[24] Effective timing of management interventions is therefore critical to avoid ecological tipping points – abrupt, sometimes irreversible shifts that can lead to species collapse or extinction.[25]

Restoration targets should align with the specific ecological needs of the area, ensuring that the chosen measures and interventions are tailored to local conditions and based on scientifically validated approaches.

In defining restoration objectives, legal and ownership frameworks also play a key role. Different areas, especially in coastal zones, may include both public and private lands, requiring a clear understanding of legal constraints and consistency across ownership boundaries. The goals of the project also need to reflect the concerns of local communities, landowners and other stakeholders.

When developing restoration targets and measures (Principle 4), it is crucial to also consider existing and potential (future) barriers to achieving success. Restoration and conservation interventions are rarely straightforward. Beyond the dynamic and complex nature of marine systems, recovery projects can encounter numerous environmental, technical, social, economic and political barriers.[26]

24 Lees, C.M. et al. (2021). Science-based, stakeholder-inclusive and participatory conservation planning helps reverse the decline of threatened species. *Biological Conservation*, 260: 109194. https://doi.org/10.1016/j.biocon.2021.109194

25 Foley, M. M. et al. (2015) Using ecological thresholds to inform resource management: current options and future possibilities. *Frontiers in Marine Science*, 2: 95. https://doi.org/10.3389/fmars.2015.00095

26 Stewart-Sinclair, P.J. et al. (2020). Blue restoration – building confidence and overcoming barriers. *Frontiers in Marine Science*, 7: 541700. https://doi.org/10.3389/fmars.2020.541700

Understanding and addressing these obstacles early is essential for designing realistic restoration strategies. Common barriers include:[27]

- **Policy and legal barriers:** Weak or fragmented legislation and complex permitting processes slow large-scale coastal and marine restoration.
- **Financing constraints:** Sustainable funding remains limited, requiring innovative financial mechanisms.
- **Monitoring limitations:** Current systems often miss subtle progress, underscoring the need for more adaptive, climate-aware metrics.
- **Data deficiencies:** Incomplete or inconsistent data hinder effective target setting and progress tracking, emphasizing the need for strong baselines and data sharing.
- **Implementation gaps:** Many conservation plans remain unexecuted or misaligned with funding and policy frameworks.
- **Competing stakeholder interests and low political prioritization**
- **Climate change:** Perhaps the most pervasive challenge, climate change demands adaptive, forward-looking recovery strategies (see Principle 10).

The Post-2020 SAPBIO includes some of these barriers, namely resource and capacity limitations, existing data gaps, and lack of political commitment to restoration. It is important to differentiate between mature projects with strong foundations and experimental ones that push boundaries in less-studied ecosystems. Mature projects provide best practices and valuable lessons on what works and what does not. However, replicating these methods may not lead to success in all contexts, highlighting the need for adaptive management (see Principle 10). This allows for flexibility, as ecosystems can vary significantly. For instance, some experimental projects – especially in overlooked ecosystems like deep-sea habitats where historical data is limited – may require new techniques and innovation, with room to evolve over time as more scientific data and experience are gathered. This creates added challenges in setting targets.

To make objectives, targets and measures more robust, existing obligations and commitments should be considered in their design. Aligning national restoration plans with established policies and processes (see Principle 8), such as regional action plans, fishery management plans, and the IMAP process will ensure a more comprehensive approach to environmental protection and management.

Assessing whether coastal or marine ecosystems (or species) are recovering and restoration goals are being achieved requires clear, quantifiable indicators. These may relate to species-specific, biodiversity, environmental, social or economic parameters that signal progress toward recovery targets.[28] Success criteria should be established collaboratively with stakeholders before implementing recovery actions and should be based on pre-assessments of species' status, habitat condition, and existing threats. Recovery success must account for both ecological gains and the benefits to communities that depend on or interact with the species.[29]

When setting objectives and targets, it is essential to define what constitutes a 'recovered state' for each species/habitat or ecosystem, recognizing that full or historic recovery may not always be achievable.

27 Abelson, Avigdor, et al. (2020). Challenges for restoration of coastal marine ecosystems in the Anthropocene. *Frontiers in Marine Science*, 7: 544105. https://doi.org/10.3389/fmars.2020.544105 ; Stewart-Sinclair, P.J. et al. (2020). Blue restoration – building confidence and overcoming barriers. *Frontiers in Marine Science*, 7: 541700. https://doi.org/10.3389/fmars.2020.541700 ; Cortina-Segarra, J. et al. (2021). Barriers to ecological restoration in Europe: expert perspectives. *Restoration Ecology*, 29, 4: e13346. https://doi.org/10.1111/rec.13346 ; Sheaves, M. et al. (2021). Restoration of marine ecosystems: Understanding possible futures for optimal outcomes. *Science of the Total Environment*, 796: 148845. https://doi.org/10.1016/j.scitotenv.2021.148845 ; Shumway, N. et al. (2021). Policy solutions to facilitate restoration in coastal marine environments. *Marine Policy*, 134: 104789. https://doi.org/10.1016/j.marpol.2021.104789 ; Waltham, N.J. et al. (2020). UN decade on ecosystem restoration 2021–2030 – what chance for success in restoring coastal ecosystems? *Frontiers in Marine Science*, 7: 71. https://doi.org/10.3389/fmars.2020.00071

28 Beissinger, S.R. (2015). Endangered species recovery criteria: Reconciling conflicting views. *BioScience*, 65, 2: 121-122. https://doi.org/10.1093/biosci/biu212; Sheaves, M. et al. (2021). Restoration of marine ecosystems: Understanding possible futures for optimal outcomes. *Science of the Total Environment*, 796: 148845. https://doi.org/10.1016/j.scitotenv.2021.148845

29 Nelson, C.R. et al. (2024). Standards of practice to guide ecosystem restoration: a contribution to the United Nations decade on ecosystem restoration 2021–2030. In: *Standards of practice to guide ecosystem restoration*. FAO, SER, IUCN. https://doi.org/10.4060/cc9106en

Croatia

RECOVERING ANGELSHARK POPULATIONS IN WESTERN VIRSKO MORE

The Western Virsko More Archipelago (Molat Island area) was identified as the last known hotspot for angelsharks (*Squatina squatina*) in the Adriatic, based on combined historic and recent records. The area represents a potential breeding and nursery ground for this Critically Endangered species.

The baseline assessment included a survey on local ecological knowledge (LEK), eDNA analysis and habitat mapping. In addition, underwater visual surveys documented the composition of the local fish community, revealing low fish biomass compared to healthy Mediterranean no-take zones. These findings provided a quantitative baseline of ecosystem degradation, highlighting the urgent need for management interventions to recover fish populations and restore trophic structure.

The management framework of the project sets five key objectives: restoring angelshark populations and their critical habitats; recovering fish biomass and trophic balance; regenerating benthic and seagrass ecosystems; maintaining excellent water quality; and enhancing local stewardship. Each objective is paired with measurable targets, such as doubling fish biomass within 5–10 years and securing breeding areas within designated no-take zones.

A comprehensive monitoring system tracks ecological, socioeconomic and compliance indicators, including fish biomass, habitat condition, water quality, fisheries landings, and community perceptions. Data will be integrated into open-access platforms with visual dashboards and GIS mapping, ensuring transparency and supporting adaptive management through regular evaluation and reporting.

The proposed measures will be embedded within national and regional policy frameworks to ensure legal enforceability and long-term protection. The alignment of existing fisheries restrictions within the Western Virsko More with the GFCM FRA process and with relevant EU policies will provide a binding status and enhance enforceability. The approach emphasizes real ecological outcomes, prevention of ‘paper parks,’ and co-management as part of the broader legislative and marine policy landscape.

6. EMPOWERING VOICES AND CREATING OWNERSHIP: STAKEHOLDER ENGAGEMENT THROUGH INCLUSIVE GOVERNANCE, OPEN COMMUNICATION

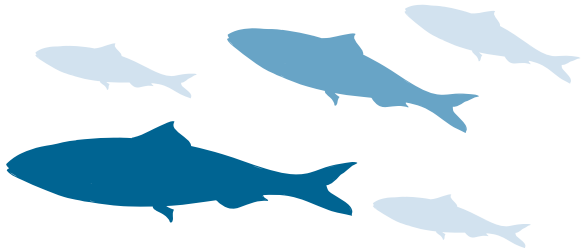
The knowledge and support of those who are interested in or impacted by nature restoration projects must be taken into consideration in all phases of a project, and training should be provided when needed.

The Post-2020 SAPBIO does not have specific requirements for stakeholder involvement in restoration planning, however, any organisation has a responsibility to respect the rights, interests and aspirations of local communities, and that inclusive, rights-based approaches deliver more durable and equitable restoration outcomes. Right holders and stakeholders should be involved early on and throughout the entire process, from planning to implementation through to monitoring and surveillance. It does however have a target for improved governance and stakeholder participation, aiming to ensure increased stakeholder dialogues, co-responsibility and co-ownership by all relevant actors in meeting the Post-2020 SAPBIO commitments, as well as administrative transparency.[30] Best practice on access to environmental information has been codified under the Aarhus Convention[31] on information sharing and public participation and subsequent case law.[32] Under Article 7 of the Aarhus Convention, parties are required to create an appropriate, fair and transparent framework so the public can participate during the preparation of plans relating to the environment.[33]

Stakeholder engagement provides access to valuable local knowledge, records about the state of the natural environment, species and habitats, and, often, historical information on the state of the environment. Additionally, stakeholder engagement promotes stewardship and ownership, increasing the likelihood of success.

There are different types of stakeholders that need to be considered in the planning and implementation of coastal and marine restoration:[34]

- **Key stakeholders** are those with a direct role in initiating and guiding restoration processes, such as government agencies responsible for policy implementation.
- **Involved stakeholders** are actors who directly influence or are affected by restoration outcomes through their actions at restoration sites.
- **Considered stakeholders** are individuals or institutions not directly involved in developing restoration scenarios and with limited influence over them, but who may still be directly or indirectly affected by restoration efforts.



30 Target 2.9

31 United Nations Economic Commission for Europe (UNECE) Convention on access to information, public participation in decision-making and access to justice in environmental matter (Aarhus Convention); geographically applicable to the UNECE region, encompassing European countries, the Caucasus and Central Asia.

32 https://environment.ec.europa.eu/law-and-governance/aarhus_en

33 To see more information on the steps to take please consult: https://wwfeu.awsassets.panda.org/downloads/wwf---nrp_final-web.pdf

34 Based on Metzger, J.P. et al. (2017). Best practice for the use of scenarios for restoration planning. *Current Opinion in Environmental Sustainability*, 29: 14-25. https://doi.org/10.1016/j.cosust.2017.10.004

For the best outcomes, it is vital to identify and engage with all stakeholder groups. This involves actively considering information from public consultation, including the needs of local communities.[35] Efforts to do so should start at the very beginning of the restoration planning process, in line with maritime spatial planning or integrated coastal zone management plans when appropriate. This ensures an open and participatory process, at a level appropriate for the planned project. Projects should include mechanisms for maintaining transparency and keeping stakeholders informed throughout the process, including its final evaluation, and they should be part of the decision making process.

It is vital that every restoration project is well communicated during all its phases. Local communities, other users of marine areas and the public must be informed on:

- Planned actions
- Expected results
- Actual impacts – both environmental and social and economic

Methods for involving stakeholders may include one or more of the following:

- Direct engagement and feedback through interviews, questionnaires or focus groups.
- Activity-based approaches such as drawing, games, workshops or art-based activities.
- Data-based approaches including scenario development, participatory mapping, media analysis, gap analysis, network analysis or human capital accounting.
- Capacity building including training, teaching and technology development.

Open communication is essential to proper engage stakeholders into the decision-making process. It also strongly contributes to maintaining the durability of positive results when the project has finished.

An often overlooked but critical aspect of recovery is building partnerships across the process. Key organizations, entities, companies or individuals can accelerate progress by taking direct responsibility for specific actions or providing essential resources through collaboration. Partnership development has become a cornerstone of effective marine conservation and management, whether through co-management, co-governance, or shared resources.[36] Potential partnership approaches include:

- Co-designing and co-managing recovery actions.
- Sharing coordinated responsibility for implementation.
- Establishing financial collaborations.
- Combining and streamlining monitoring efforts.
- Engaging and involving stakeholders through joint initiatives.

Partnerships and collaborations at national and local level are as important in restoration as those between countries.

RESOURCE

Some lessons learned from stakeholder engagement in marine spatial planning: https://www.mspglobal2030.org/resources/key-msp-references/step-by-step-approach/engaging-stakeholders/

35 Post-2020 SAPBIO: 4.4. Enabling tools for marine biodiversity conservation; Point 78

36 Voorberg, W. & Van der Veer, R. (2020). Co-management as a successful strategy for marine conservation. *Journal of Marine Science and Engineering*, 8, 7: 491. https://doi.org/10.3390/JMSE8070491; White, R.M. et al. (2023). Facilitating biodiversity conservation through partnerships to achieve transformative outcomes. Conservation Biology, 37, 3: e14057. https://doi.org/10.1111/cobi.14057

7. TOWARDS RESTORATION TARGETS: MONITOR PROGRESS FOR TANGIBLE IMPROVEMENT AND RESULTS

Effective monitoring is critical to ensuring that restoration projects achieve measurable improvements in habitat conditions, species diversity and ecosystem services. Using existing processes can avoid duplication of efforts and support efficient use of resources.

A well-designed monitoring system provides essential data to assess progress against baseline conditions and determine whether restoration efforts are meeting their objectives.

By implementing clear, science-based monitoring and evaluation frameworks, restoration projects can adjust management strategies as needed to promote long-term success.

A comprehensive monitoring programme for coastal and marine restoration should encompass several key components:

- Species/habitat monitoring
- Implementation monitoring
- Threat and risk monitoring

To support this, restoration projects can draw on existing data and resources on species, habitats and ecosystem health. Useful tools and databases include European data collection processes (see EPO report), as well as regionally established surveys under the IMAP process, MEDITS, and stock assessments under the GFCM and ICCAT. To ensure a robust evaluation of restoration progress, independent evaluations by third parties should be considered, which may also include surveillance mechanisms.

RESOURCE

Tools and applications for ecosystem restoration monitoring: https://www.decadeonrestoration.org/publications/tools-and-applications-ecosystem-restoration-monitoring

MedPAN guide to restoration: https://medpan.org/sites/default/files/media/downloads/restcoast_literature-review_restorationmpas-draft.docx-1.pdf

ELSP Landscape & Seascape Restoration Monitoring FrameworkGuidance document: https://www.endangeredlandscapes.org/wp-content/uploads/2025/09/Monitoring-Framework_SEPT2025.pdf

8. AVOIDING GREENWASHING: ALIGN PLANNING WITH EXISTING POLICIES AND CLOSE POLICY GAPS

Aligning regional and national policies and establishing transparent processes is key to achieving restoration goals without falling into greenwashing traps.

Greenwashing – i.e. making false or misleading statements about the environmental benefits of a certain practice – is a growing issue in marine restoration. It occurs when industries make claims about positive nature restoration impacts while in reality their practices do not correspond with a scientific understanding of what genuine restoration entails. Often, such efforts only serve to mask the negative environmental impacts of certain practices, in order to facilitate access to a particular area or to continue 'business as usual'. It is critical to distinguish these from genuine restoration efforts, which can be undermined by such misleading greenwashing claims.

For instance, a growing sector in the region is aquaculture, which is often labelled as a 'sustainable' alternative to commercial fishing. However, aquaculture comes with several challenges in relation to its environmental impacts, and if these aren't communicated to the consumer than this constitutes greenwashing.[37] Integrated multi-trophic aquaculture (IMTA), which can offer pathways for marine restoration, remains largely unused in the Mediterranean.[38] Beneficial outcomes of restorative aquaculture can include habitat rehabilitation, species recovery and bioremediation, among others.[39] Yet such measures require further assessment, and the impacts of aquaculture must be clearly and transparently communicated to consumers. Terms like 'restorative aquaculture' are misleading if no actual benefits for the environment are achieved.

Fishing is a key industry that cannot be ignored in marine restoration efforts. The Post-2020 SAPBIO aims for there to be science-based management plans in all countries by 2027 to ensure sustainable fisheries, eliminate illegal and destructive practices, and reduce harm to protected species – so that by 2030, all ecologically damaging and unsustainable fishing methods are phased out, particularly those posing the greatest threats to biodiversity and vulnerable marine ecosystems.[40]

Effective management – including fisheries restrictions – is hindered by unaligned timelines for conservation needs and management processes. In the Mediterranean, fisheries restrictions are established through a consent-based decision-making process in the GFCM. Proposals for such restrictions must overcome several barriers including assessments of threat, populations, habitat status and socioeconomic impacts. Like the joint recommendation process at EU level, this process can be slow, which risks delaying essential restoration efforts. Furthermore, the process tends to favour commercial interests over nature conservation.

37 Altintzoglou, T., Canavari, M., Maesano, G. & Honkanen, P. (2024). *Building Trust: Consumer Awareness, Acceptance and Attitudes Related to European Aquaculture and the Potential Effects of Greenwashing*. http://dx.doi.org/10.2139/ssrn.4783736

38 Giangrande, A. et al. (2021). Aquaculture and restoration: Perspectives from mediterranean sea experiences. *Water*, 13, 7: 991. https://doi.org/10.3390/w13070991

39 Overton, K. et al. (2024). Achieving conservation and restoration outcomes through ecologically beneficial aquaculture. *Conservation Biology*, 38.1: e14065. https://doi.org/10.1111/cobi.14065

40 Post-2020 SAPBIO Target 2.4

As a result, even though the GFCM's 2030 Strategy supports ecological restoration, the FRA process can risk non-compliance if it is not properly managed within the tight timelines for drafting restoration plans. The GFCM therefore must actively engage and commit to restorative actions to avoid delays that hinder progress toward restoration targets.

Designated protection for areas of conservation value also needs to improve. In 2020, MEDPAN reported on the status of MPAs in the region,[41] highlighting limited progress towards effectively managed areas and conservation ambitions. The two main findings of the report were that only 8.3% of the region is covered by MPAs, and that MPAs are unevenly distributed with most being designated by EU Member States. Not much has changed since then. In June 2025 at the United Nations Ocean Conference, MEDPAN provided a provisional update that shows almost no change since 2020. As protection and restoration areas may overlap or be connected, 'paper parks' remain a risk (see Principle 4). True restoration must go beyond superficial measures, ideally addressing the root causes of degradation and enforcing consistent, robust policies that prioritize long-term ecological recovery.

Restoration planning needs to consider existing policies. Policy alignment involves assessing and adapting restoration efforts within the framework of existing policies and governance processes.

This has four key dimensions:

1. **National policy constraints** – identifying policies that may hinder or delay recovery actions, such as licensing or permitting requirements, land ownership issues, or existing rights to resources.
2. **Enabling policies** – determining what new policies or regulations are needed to support and accelerate the recovery process.
3. **Strategic coherence** – ensuring alignment between national strategies and policy objectives across related areas, such as Nationally Determined Contributions (NDCs), National Biodiversity Strategies and Action Plans (NBSAPs), and national fisheries management frameworks.
4. **Regional coordination** – aligning recovery plans with existing regional action plans, fisheries management initiatives, and related frameworks.

Given the growing global commitments to address the interconnected crises of biodiversity loss, climate change and pollution, countries should strive to align and integrate their actions wherever possible. This may also involve adapting administrative processes to support both active and passive restoration approaches.

The need to synergize national plans has also been recognized in relation to climate change. WWF, together with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the International Institute for Sustainable Development (IISD), has published practical recommendations on how national-level policymakers could advance a synergistic approach for NDCs, NAPs and NBSAPs.[42]

Transparency and accountability must be prioritized, for instance by publishing environmental and socioeconomic assessments. This can be achieved by establishing clear, measurable goals and timelines, using standardized data collection methods, and sharing results openly. Independent audits and third-party evaluations can help verify claims. Additionally, engaging local communities and scientists in project planning and monitoring ensures that restoration efforts are both credible and sustainable over the long term.

41 MedPAN & UNEP/MAP-SPA/RAC. (2023). *The 2020 Status of Marine Protected Areas in the Mediterranean*. https://medpan.org/sites/default/files/media/downloads/the-status-of-marine-en10_compressed.pdf

42 Adaptation Community. (2024). *Effectively delivering on Climate and Nature: NDCs, NAPs and NBSAPs Synergies – A checklist for national policymakers*. https://www.adaptationcommunity.net/publications/effectively-delivering-on-climate-and-nature-checklist/ Adaptation Community. (2024). Effectively delivering on Climate and Nature: NDCs, NAPs and NBSAPs Synergies – A checklist for national policymakers. https://www.adaptationcommunity.net/publications/effectively-delivering-on-climate-and-nature-checklist/

9. LONG-TERM COMMITMENT: SECURED FINANCING AND NON-DETERIORATION STRATEGIES TO MAINTAIN BENEFITS

Marine ecosystems take time to recover, and sustained efforts are necessary to achieve and maintain restoration goals in the long term.

The Post-2020 SAPBIO specifically aims to reduce threats to biodiversity (Goal 1). Three dedicated targets have been developed under the strategy addressing anthropogenic threats to protected species and habitats, minimizing impacts from invasive species, and reducing or eliminating pollution.[43] Preventing degradation through managing harmful activities is crucial to achieve and maintain coastal and marine restoration.

To ensure the long-term success of restoration projects, it is essential to develop comprehensive plans that not only address immediate restoration needs but also prevent further deterioration of sites, safeguard areas in ecosystem-based marine spatial plans and sustain restoration gains.

This requires robust strategies that incorporate long-term funding, consistent monitoring, regular evaluation and the flexibility to adapt restoration measures when necessary. Engaging local communities by providing capacity development opportunities when needed and fostering stewardship is also crucial to ensure compliance, as their ongoing commitment helps maintain restored areas and ensures the success of initiatives over time (see Principle 6).

A persistent challenge across Mediterranean countries – particularly in the southern and eastern regions – has been the lack of adequate funding. The SAPBIO initiative seeks to establish sustainable financing strategies by 2027, with the goal of increasing regional funding for biodiversity conservation from all sources by 2030.

Long-term commitment is also linked with securing sustainable financing. This includes developing sustainable income mechanisms such as revenues that can be created from alternative activities benefiting from restoration,

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43 Post-2020 SAPBIO Targets 1.1, 1.2. and 1.3

e.g. tourism or fishing – outside restoration areas without compromising restoration integrity, which is a critical element for achieving lasting restoration outcomes. Funding can come from a diverse mix of sources, including government grants, EU programmes and private investments.

Existing and emerging solutions include biodiversity credits, developing alternative livelihoods, pay-for-use models, adoption programmes, and blended finance models – which combine public, philanthropic and private funding – to mitigate risks and attract commercial capital.[44] Finance solutions must evolve to meet the varying needs of restoration efforts over time.

Public-private partnerships and green bonds can offer innovative ways to finance large-scale restoration efforts. Looking holistically at existing policy frameworks – such as the sustainable finance taxonomy and its 'do no significant harm' component – can align financial and regulatory incentives, ensuring long-term support for restoration activities. Clear socioeconomic benefits, such as increased biodiversity, improved ecosystem services and local economic opportunities, further strengthen the case for sustained investment in these projects.

WWF aims to bridge the major gap in nature financing by expanding initiatives like project finance for permanence (PFP), the Nature-Based Solutions Origination Platform, and WWF Impact Ventures to deliver innovative financial solutions and partnerships that accelerate conservation goals and turn environmental commitments into tangible, investable actions.

44 The World Bank. (2024a). *Blueprints for Private Investment in Ecosystem Restoration Lessons from Case Studies*. https://documents1.worldbank.org/curated/en/099031424202517999/pdf/P177706182oa410fa1a50e1580bed5ade8a.pdf

Italy

RECOVERY ON A SEASCAPE SCALE: RESTORING SOUTHERN APULIA

On the southern coast of Apulia, Italy, the sea and land are deeply intertwined. Yet years of anchoring, illegal fishing and overfishing, erosion, and unmanaged tourism have weakened this bond. The Restoring Southern Apulia seascape aims to reverse that trend, combining science, community stewardship and equitable governance to restore 52,000 hectares of marine and coastal habitats.

With a five-year Horizon project grant, the Endangered Landscapes & Seascapes Programme funded WWF and seven partners to implement an initiative that blends active and passive restoration to recover the seascape's three interconnected ecosystems: *Posidonia oceanica* seagrass meadows, coralligenous reefs, and coastal dunes. Together, they form a living mosaic that sustains biodiversity, absorbs carbon, buffers waves, and supports small-scale fisheries and tourism.

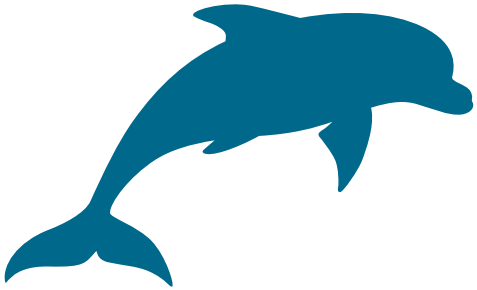
Building on the success of the Torre Guaceto MPA, the project intents to demonstrate how a small pilot site can scale into a seascape model to enhance the resilience potential and address management challenges of marine Natura 2000 sites. Restoration techniques will include seagrass transplantation, the installation of eco-mooring parks and no-take zones, and dune restoration.

Equity and sustainability lie at the project's core. Through co-management schemes and a Coastal Contract, local authorities, research institutions and communities will jointly plan and manage natural resources and restoration efforts, ensuring benefits are shared fairly and decisions reflect local priorities. Innovation will be mobilized to improve surveillance and enforcement.

To secure the future of the seascape, the project is developing long-term financing solutions – from ecotourism to voluntary carbon or biodiversity credits – creating self-sustaining mechanisms for conservation and community welfare.

By linking ecological connectivity, social inclusion and financial innovation, the Apulia restoration project is setting a tipping point for natural regeneration – with the aim of proving that restoring the sea can restore the resilience, identity and prosperity of the people who depend on it.

10. ADJUSTING STRATEGIES: ADAPTIVE MANAGEMENT IN AN ERA OF CLIMATE CHANGE AND EVOLVING CONDITIONS



Adaptive management is essential for reaching a project's goals, especially in a dynamic marine environment, and will ensure resilience in the long term.

Marine environments are dynamic systems affected by multiple factors including climate change, pollution, invasive species, and various human activities. As well as being important for reporting and evaluating progress, regular monitoring can help identify unexpected environmental changes – such as species mortality, loss of water oxygen, reduced water transparency, increased pollution and others. With regular monitoring, new trends can be identified and the management of a given restoration site can be adjusted accordingly. Such adaptive management improves the chances of restoration success by mitigating risks before they escalate.

In this regard, it is key that restoration planning and recovery plans are aligned and updated with national climate change strategies and spatial planning processes. Restoration planning must follow adaptive management principles by taking evolving climate conditions into account. Climate adaptation plans, in return, must promote nature-based solutions and ecosystem-based adaptation to achieve restoration and climate targets.

Adaptive planning also needs to accommodate both biological and policy timelines, which include:

- Timelines for recovery of species, habitats, ecosystems, and natural processes
- Administrative timelines, including the duration of approvals and procedural steps
- Timelines for action and implementation
- Policy timelines related to targets, processes, and reporting requirements
- Political timelines such as government transitions, budget cycles, and elections

In addition, assessments such as the First Mediterranean Assessment Report (MAR 1) prepared by the independent network of Mediterranean Experts on Climate and environmental Change (MedECC), published in 2020, can guide adaptive planning. The report synthesizes the best available scientific knowledge on climate and environmental changes and their related risks in the Mediterranean basin, presenting the information in an accessible way for policymakers, stakeholders, and the public.

Such reports underscore the synergies between ecosystem restoration and climate change resilience, serving as a critical resource for policymakers and national authorities responsible for restoration projects. This includes demonstrating the role of adaptive management in building resilience to climate change impacts. By clearly linking adaptive management practices with climate adaptation goals, the planning of restorative measures can offer a more robust framework for integrating ecological restoration into broader climate strategies, ensuring that restoration efforts deliver tangible, measurable benefits in addressing the dual challenges of climate adaptation and disaster risk reduction.

THE WAY FORWARD

Restoring our marine ecosystems is crucial for safeguarding biodiversity, enhancing climate resilience and securing the well-being of coastal communities across the Mediterranean. The regional strategy within the Post-2020 SAPBIO comes at a pivotal moment when many ecosystems are nearing critical tipping points. We cannot afford to waste time; urgent action is required to revive our ocean.

This is no time for ineffective plans, or mere 'box-ticking' exercises. To ensure success, we need clear principles for marine ecosystem restoration, emphasizing the urgency for Mediterranean states to deliver their restoration inventories and recovery plans promptly. These plans must be ambitious and robust, with regional cooperation through SPA/RAC and the GFCM playing a vital role in holding countries accountable.

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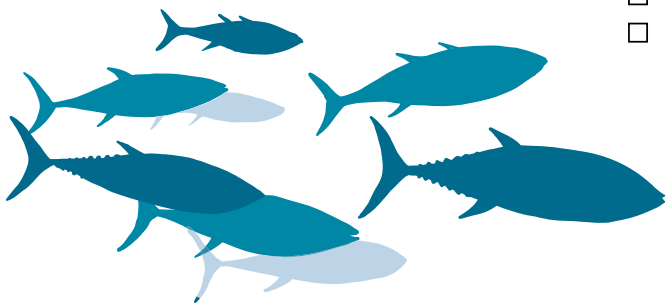
CHECKLIST TO REACH THE 10 KEY PRINCIPLES FOR EFFECTIVE MARINE RESTORATION:

1. Starting strong: Use baseline studies to identify a reference point for a healthy ecosystem and assess restoration needs

- ☐ Collect all available scientific and socioeconomic data.
- ☐ Consult people for historical data.

2. Uncovering root causes of degradation: Identify ecosystem threats and drivers for the planning process

- ☐ Assess root causes and drivers of degradation.
- ☐ Include an analysis of land-sea interactions in your assessment.



3. United seas: Scale up regional dialogue with connectivity mapping and transboundary cooperation

- ☐ Work in a transboundary manner (within regional sea conventions or other regional forums) before planning national restoration approaches and concluding the national inventory.
- ☐ Identify key ecosystem connectivity components like migratory corridors (this is also reflected in the ecosystem-based approach to marine spatial planning).

4. Choosing appropriate measures: Prioritize passive restoration where ecosystems have the potential to recover naturally without direct interventions

- ☐ Investigate passive restoration first.
- ☐ Consider active restoration as a second option with a switch to passive restoration in the longer run.

5. Setting clear objectives: Define restoration targets and related measures for success, and identify potential barriers

- ☐ Ensure targets are SMART.
- ☐ Align targets with the specific ecological needs of the area and tailor measures and interventions to local conditions.
- ☐ Identify potential barriers and solutions to overcome them.
- ☐ Provide targets based on science to define accurate monitoring and success criteria.

6. Empowering voices and creating ownership: Stakeholder engagement through inclusive governance, open communication and partnerships at regional, national and local level

- ☐ Engage in the decision-making process.
- ☐ Map stakeholders and their engagement levels.
- ☐ Communicate through all phases of the project with local communities, other users of marine areas and the general public.
- ☐ Share planned actions, expected results and actual impacts – both environmental and social.
- ☐ Establish national and local partnerships.

7. Towards restoration targets: Monitor progress for tangible improvement and results

- ☐ Have a monitoring system to assess progress against baseline conditions and determine whether restoration efforts are meeting their objectives.
- ☐ Use available data sources and processes.

8. Avoiding greenwashing: Align planning with existing policies and close policy gaps to prevent failure

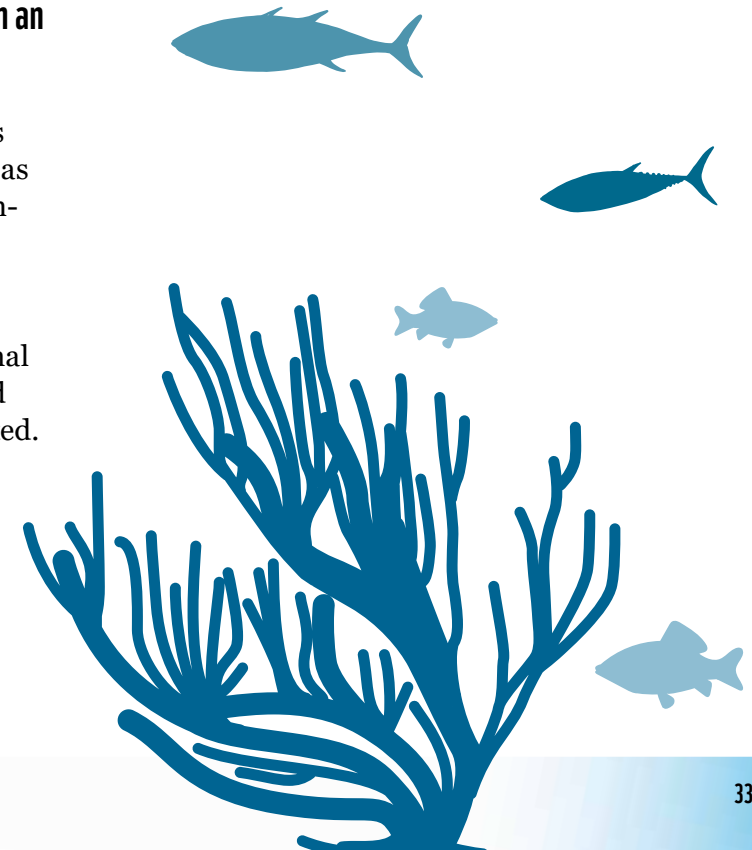
- ☐ Align FRA process, timelines and objectives with Post-2020 SAPBIO.
- ☐ Design restoration areas to prioritize restoration and conservation activities, considering impacts from other sectors and excluding incompatible uses such as offshore renewable energy.
- ☐ Prioritize transparency and accountability, for instance by publishing environmental and socioeconomic assessments.
- ☐ Align national strategies for conservation and development with restoration planning.

9. Long-term commitment: Secured financing and non-deterioration strategies to maintain economic and social benefits

- ☐ Ensure your plans not only address immediate restoration needs but also prevent further deterioration of sites.
- ☐ Ensure areas are safeguarded within an ecosystem-based marine spatial plan which sustains restoration gains.
- ☐ Address long-term financial needs.

10. Adjusting strategies: Adaptive management in an era of climate change and evolving conditions

- ☐ Include adaptive management mechanisms to factor in dynamic systems changes such as climate change, pollution, expansion of non-native species and other human activities' impacts.
- ☐ Ensure climate change adaptation plans, National Determined Contributions, national strategies and biodiversity action plans and restoration planning are aligned and updated.



APPENDIX

FROM GLOBAL COMMITMENTS TO REGIONALLY REQUIRED ACTIONS

Ecosystem restoration is governed by a range of international legal frameworks, treaties and policies aimed at halting biodiversity loss, mitigating climate change, and promoting sustainable development.

In March 2019, the United Nations General Assembly (UNGA) adopted a resolution (A/RES/73/284) that puts ecosystem restoration at the centre of international development through the declaration of the UN Decade on Ecosystem Restoration from 2021 to 2030. This was based on a proposal by more than 70 countries and internally coordinated by the UN National Environment Programme (UNEP) and the Food and Agriculture Organization of the UN (FAO).

In December 2022, Parties to the Convention on Biological Diversity (CBD) adopted a global strategy to halt biodiversity loss, the Kunming-Montreal Global Biodiversity Framework (GBF). This framework sets out 4 goals for 2050 and 23 targets for 2030 to halt and reverse the loss of biodiversity, putting nature on a path to recovery. The GBF places restoration and species recovery at the core of the actions required to ensure a future in which ecosystems deliver the necessary services to maintain planetary health and secure species survival. It builds on previous strategic goals, including the CBD's Aichi targets (i.e. Aichi Target 15),[45] which already put restoration at the forefront of urgent actions, and responds to the global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) that highlighted progress – or the lack thereof – towards international commitments. Within the GBF, Target 2 sets the global commitment for ecosystem restoration, while Target 4 puts species recovery in focus.

TARGET 2 GBF

Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

TARGET 4 GBF

Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.

45 Aichi Target 15: "By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification."

Restoration efforts should follow priorities established at national, subnational and local levels to ensure balanced progress across all key outcomes. Parties to the Convention are encouraged to set such national targets specifying the spatial extent of degraded ecosystems to be restored, and to incorporate these targets into their National Biodiversity Strategies and Action Plans (NBSAPs). Effective and well-coordinated NBSAPs depend on recognizing the interconnections among targets, thereby enhancing efficiency and overall outcomes while enabling the balancing of trade-offs – such as those between the ecological goals of Target 2 and the need to maintain production and ecosystem services that support human well-being under Targets 10 and 11.[46]

Successful restoration requires an integrated approach that includes assessment, planning, implementation, ongoing management, and regular monitoring and evaluation, as well as cross-sectoral coordination and cross-policy alignment. Other Conventions have also recognized the need for restorative measures. One of the earliest among them was the Ramsar Convention, under which several guidance documents have been developed.[47] This treaty supports the restoration of degraded wetlands to sustain biodiversity and maintain vital ecosystem services. It obligates countries to protect and restore wetlands critical for migratory birds, fish, amphibians and other species. At the 15th CoP of the Ramsar Convention, Parties adopted the Fifth Plan for the Convention on Wetlands 2025-2024, sharing a vision of:

"A world living in harmony with nature where wetlands are valued, conserved, restored and wisely used, maintaining ecosystem services supporting a healthy planet and delivering benefits for all people."

The goal of the Ramsar Convention – to understand and address drivers of degradation and effectively restore these wetland ecosystems – also contributes to Target 2 of the GBF (Goal 1, Target 1.1).

Restoration efforts are closely connected to climate mitigation and adaptation objectives, supported by global frameworks such as the Paris Agreement and Nationally Determined Contributions (NDCs), which encourage the integration of restoration into climate action strategies. The United Nations Framework Convention on Climate Change (UNFCCC), the primary international treaty guiding global climate efforts, requires countries to submit NDCs – national plans that set out commitments for emissions reductions and adaptation measures, increasingly highlighting nature-based solutions. Ecosystem restoration is becoming a central element within NDCs, as it contributes to both mitigation (through carbon sequestration) and adaptation (by enhancing resilience), aligning with the UNFCCC's overarching goals of stabilizing greenhouse gas emissions and advancing sustainable development.

Another convention that is increasingly recognizing the need for coordinated international and national action is the Convention on the Conservation of Migratory Species of Wild Animals (CMS), which aims to protect and restore those habitats that support species during their life cycles and along their transboundary migration routes. At the 14th Conference of the Parties in Samarkand (Uzbekistan) in 2024, the CMS launched the first State of the World's Migratory Species report, which delivered essential information on the conservation status of migratory species, highlighted threats they face, and set out a series of recommendations. The migratory species report has an entire chapter dedicated to ecosystem restoration which recognizes its importance for reversing species declines and securing benefits to both nature and human society.[48] The report played a significant role in enhancing global awareness of the importance of migratory species and the measures required to ensure their survival. At the same time, the Convention adopted its strategic approach for the conservation of migratory species over the next eight years: the Samarkand Strategic Plan for Migratory Species 2024-2032 (SPMS).

46 FAO, SCBD & SER. (2024). *Delivering restoration outcomes for biodiversity and human well-being – Resource guide to Target 2 of the Kunming-Montreal Global Biodiversity Framework*. Rome, Montreal, Canada and Washington, DC. https://doi.org/10.4060/cd2925en

47 See: https://www.ramsar.org/publications?f%5B0%5D=topic%3A3293

48 UNEP-WCMC. (2024). *State of the World's Migratory Species*. Cambridge, United Kingdom. https://www.cms.int/en/publication/state-worlds-migratory-species

The strategy sets out overarching goals with concrete, time-bound targets. Under Goal 2 of the SPMS habitats and ranges of migratory species are secured and if necessary restored, including their ecological connectivity. To achieve this, the strategy sets out three habitat-specific targets:

TARGET 2.1

By 2029, all important habitats for migratory species listed in CMS Appendices are identified, assessed and monitored to ensure their functionality and ability to support migratory species throughout their life cycles.

TARGET 2.2

By 2032, all important habitats for migratory species listed in CMS Appendices are protected, effectively conserved, managed and restored through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures.

TARGET 2.3

By 2032, the loss, degradation and fragmentation of important habitats for migratory species listed in CMS Appendices is reduced, and habitats are restored to ensure that such habitats support their viability.

The CMS has progressively advanced an ecosystem-based approach that prioritizes ecological connectivity. At the 14th Conference of the Parties in 2024, Resolution 14.16 on Ecological Connectivity was adopted, which urges Parties (and invites others) to:

> "...give special attention to the issues highlighted in this Resolution **when planning,** implementing and evaluating actions designed to support the protection, conservation, restoration and effective management of migratory species, both at national level and in the context of **regional and international cooperation,** including in particular when:
>
> **[...] (ii) identifying, prioritizing, designating, restoring and managing protected areas and developing other effective area-based conservation measures,** both within and beyond areas of national jurisdiction [...]"

The Resolution further requested the Secretariat to bring the resolution to the attention of, inter alia, the CBD and the Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Agreement),[49] due to its relevance for achieving the objectives under both legal instruments. The CMS recognizes several processes to support Parties in the identification of such habitats, including the CBD's Ecologically or Biologically Significant Marine Area (EBSA) process, and IUCN-led initiatives such as those related to 'important areas' including Important Shark and Ray Areas (ISRAS),[50] Important Marine Mammal Areas (IMMAs),[51] Important Marine Turtle Areas (IMTAs)[52] and Important Bird and Biodiversity Areas (IBAs).[53]

These area identification processes can help to find reference sites or set target conditions for areas that need to be restored, i.e. if an area does not meet the criteria for an ISRA or EBSA but is known to have hosted high biodiversity in the past, it can be a priority for marine or coastal restorative actions.

The CMS is described as a framework convention because it provides the overarching legal framework for Parties to develop specific international agreements, such as legally binding treaties or less formal Memoranda of Understanding (MoUs) for migratory species or groups of species.

49 The BBNJ Agreement will enter into force in January 2026 and provides a framework for establishing spatial protection in areas beyond national jurisdiction (ABNJ).
50 UNEP/CMS / Resolution 14.7 on *Important Shark and Ray Areas (ISRAs)*
51 UNEP/CMS / Resolution 12.13 on *Important Marine Mammal Areas (IMMAs)*
52 Important Marine Turtle Areas (https://static1.squarespace.com/static/5e4c290978d00820618e0944/t/61e0557f9c2cdd4c4bec8037/1642091906570/IMTA+Guidelines+1.0.pdf)
53 https://www.cambridge.org/core/journals/bird-conservation-international/article/important-bird-and-biodiversity-areas-ibas-their-impact-on-conservation-policy-advocacy-and-action/717203A1C8231F572B0C8B6C1C1A1011

These agreements are tailored to regional needs and conservation issues. Relevant in the context of restoration in the Mediterranean are the binding Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS), as well as the Shark MoU, which both aim to protect and restore habitats for the respective species.

REGIONAL LEVEL

At EU level, the EU Biodiversity Strategy for 2030 and the Nature Restoration Law align with global restoration goals by setting binding targets to restore degraded ecosystems across Member States. These relatively recent strategies sit within the EU's existing policy landscape for marine planning, management and conservation.

Relevant EU policies include:

- **The EU Birds and Habitats Directives** include legally binding obligations that require the protection and restoration of priority habitats for species listed in Annexes I and II, as well as the recovery of populations of threatened birds and other wildlife.
- **The Common Fisheries Policy** (CFP) aims to maintain and restore fish stocks at a level where they can be harvested at maximum sustainable yield. Member States are also requested to consider incentives for low-impact fishing causing the least (or no) environmental damage (Art. 17).
- **The EU Marine Spatial Planning Directive (MSP Directive)** establishes a framework for maritime spatial planning to organize and manage activities in EU marine waters for sustainable economic growth, development and resource use. It legally requires EU Member States to develop and implement maritime spatial plans (MSPs) to manage competing uses like fishing, shipping, renewable energy and conservation, encouraging cross-border cooperation and a long-term, ecosystem-based approach.
- **The Marine Strategy Framework Directive (MSFD)** requires EU countries to restore marine habitats and achieve Good Environmental Status (GES), including recovery of overexploited marine species.
- **The EU Biodiversity Strategy for 2030** includes commitments under the GBF to restore habitats critical for species recovery, with specific measures to improve the conservation status of at least 30% of species and habitats protected under EU law.
- **The EU Adaptation Strategy** aims to enhance climate resilience through smarter data-driven actions, faster risk reduction, integrated cross-sectoral adaptation, and strengthened international cooperation and financing.
- **The EU Nature Restoration Law** is the key legislation committing EU Member States to restorative actions, and aligns with global restoration goals by setting binding targets to restore degraded ecosystems.
- **The European Ocean Pact** builds on six priorities, the first being 'Protecting and restoring ocean health'. It integrates efforts to expand the EU's network of MPAs and lays the foundation for the development of the future EU Ocean Act.

Approved by the Mediterranean countries and the European Union, a framework convention was established in 1976 to protect the Mediterranean from pollution. Following the 1992 Rio Conference, it was amended and renamed the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention (BC)), adopted in 1995. Together, UNEP/MAP[54] and the Barcelona Convention have gradually developed a comprehensive institutional, legal and implementation framework.

54 United Nations Environment Programme/Mediterranean Action Plan

The Barcelona Convention is implemented through several protocols, including the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol).[55] The SPA/BD Protocol focuses on ecosystem restoration and species recovery, and specifies the identification of regionally important areas.[56] Countries must identify and protect endangered species and their habitats, with obligations to restore habitats essential for threatened species. Several regional action plans have been developed to guide these commitments:

- Regional strategy for the conservation of Monk Seal in the Mediterranean
- Action Plan for the conservation of marine turtles in the Mediterranean
- Action Plan for the conservation of cetaceans in the Mediterranean Sea
- Action Plan for the conservation of marine vegetation in the Mediterranean Sea
- Action Plan for the conservation of bird species listed in annex II of the SPA/BD Protocol
- Action Plan for the conservation of cartilaginous fishes (Chondrichthyans) in the Mediterranean Sea
- Action Plan concerning species introduction and invasive species
- Action Plan for the conservation of the coralligenous and other calcareous bio-concretions in the Mediterranean Sea
- Action Plan for the conservation of habitats and species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemo-synthetic phenomena in the Mediterranean Sea (Dark Habitats Action Plan)

These regional plans are subject to review at biennial focal point meetings. While these policies support and commit Mediterranean coastal states to the identification of important areas and their protection, coordinated restoration efforts sit within the Post-2020 Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (Post-2020 SAPBIO). This strategic document outlines a long-term vision for the Mediterranean region and was aligned with the CBD Post-2020 Global Biodiversity Framework and SDGs, following a request by the Barcelona Convention COP21 in 2019. This long-term vision was formalized as follows (emphasis added):

"By 2050, marine and coastal biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy Mediterranean Sea and coast, and delivering benefits essential for nature and people."

With this, the strategy foresees that by 2030 biodiversity loss across the region is reversed and Mediterranean ecosystems are on the "path to recovery". The strategy identifies regional and subregional priorities and required actions to achieve the outset targets for marine and coastal recovery. Under the Post-2020 SAPBIO, Parties to the Barcelona Convention must develop national inventories of ecosystems with "the highest ecological relevance and/or regeneration potential" by 2027[57] and take actions to complete the restoration of most of those ecosystems by 2030 (Target 1.6).[58] This will also support the achievement of other targets such as those on climate change (T1.8). Related Action 2 (Species Recovery) requests that "by 2030, all Mediterranean countries are implementing recovery plans and emergency actions, as appropriate, for threatened and endangered species [...]".

Climate change as a concern for coastal and marine areas is integrated in the Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas,[59] which requires Mediterranean countries to integrate climate adaptation into national plans for areas that are particularly vulnerable.[60]

55 The Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (adopted on 10 June 1995, entered into force on 12 December 1999).
56 Specially Protected Areas of Mediterranean Importance (SPAMIs
57 The aim is that most countries will have these in place by then and all countries by 2030.
58 Action 12 Restoration. Activities and expected results in support of Targets T1.6,T1.8,T3.5 (networking), and T3.7 (education & outreach) of the Post-2020 SAPBIO. ANNEX III Post-2020 SAPBIO Actions Table
59 Decision IG.22/6 (2016) as adopted by the 19th Meeting of the Contracting Parties to the Barcelona Convention
60 Decision IG.22/6: Strategic Direction 1.5: Integrating climate adaptation into local plans for the protection and management of areas of special interest

The Barcelona Convention also works closely with the General Fisheries Commission for the Mediterranean (GFCM), which is responsible for managing marine resources and species affected by the fisheries within its mandate. The GFCM has a responsibility to protect essential habitats that support commercial stocks,[61] and identify areas where interactions with vulnerable species and habitats occur to avoid ecosystem degradation through impacts from fishing.[62] In 2021, the GFCM adopted its strategic plan towards 2030, which covers five overarching targets, each composed of species actions and related outputs. Target 1 of the GFCM's 2030 Strategy evolves around ecosystem health and considers the need for efficient spatial conservation measures and nature-based solutions to conserve biodiversity and increase ecosystem productivity. The strategy further calls for efforts to be aligned with, and considerate of, internationally agreed actions under the CBD/GBF and the UN Decade on Ecosystem Restoration.

Several organizations and consortia have been established to promote, oversee and support a sustainable future for the Mediterranean Sea, such as MedPAN and the Med Sea Alliance with whom WWF works closely. The Union for the Mediterranean (UfM) also advances regional collaboration aimed at ecosystem restoration and species recovery. Through initiatives like the 2030 GreenerMed Agenda, it is committed to restoring habitats and protecting biodiversity, with a particular focus on endemic and endangered Mediterranean species.

An overview of the interlinked international and regional frameworks and policies that guide restoration efforts in the Mediterranean is provided in Figure 2.

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61 See GFCM Fisheries Restricted Areas for Essential Fish Habitats: https://www.fao.org/gfcm/activities/fisheries/management-measures/spatio-temporal/en/

62 See Protocols for the protection of VMEs in the GFCM area of application (as part of the final report of the forty-second session of the GFCM), Resolution GFCM/46/2023/4 on a regional plan of action to monitor and mitigate interactions between fisheries and vulnerable species in the Mediterranean and the Black Sea; AND Resolution GFCM/43/2019/6 on the establishment of a set of measures to protect vulnerble marine ecosystems formed by cnidarian (coral) communities in the Mediterranean Sea.

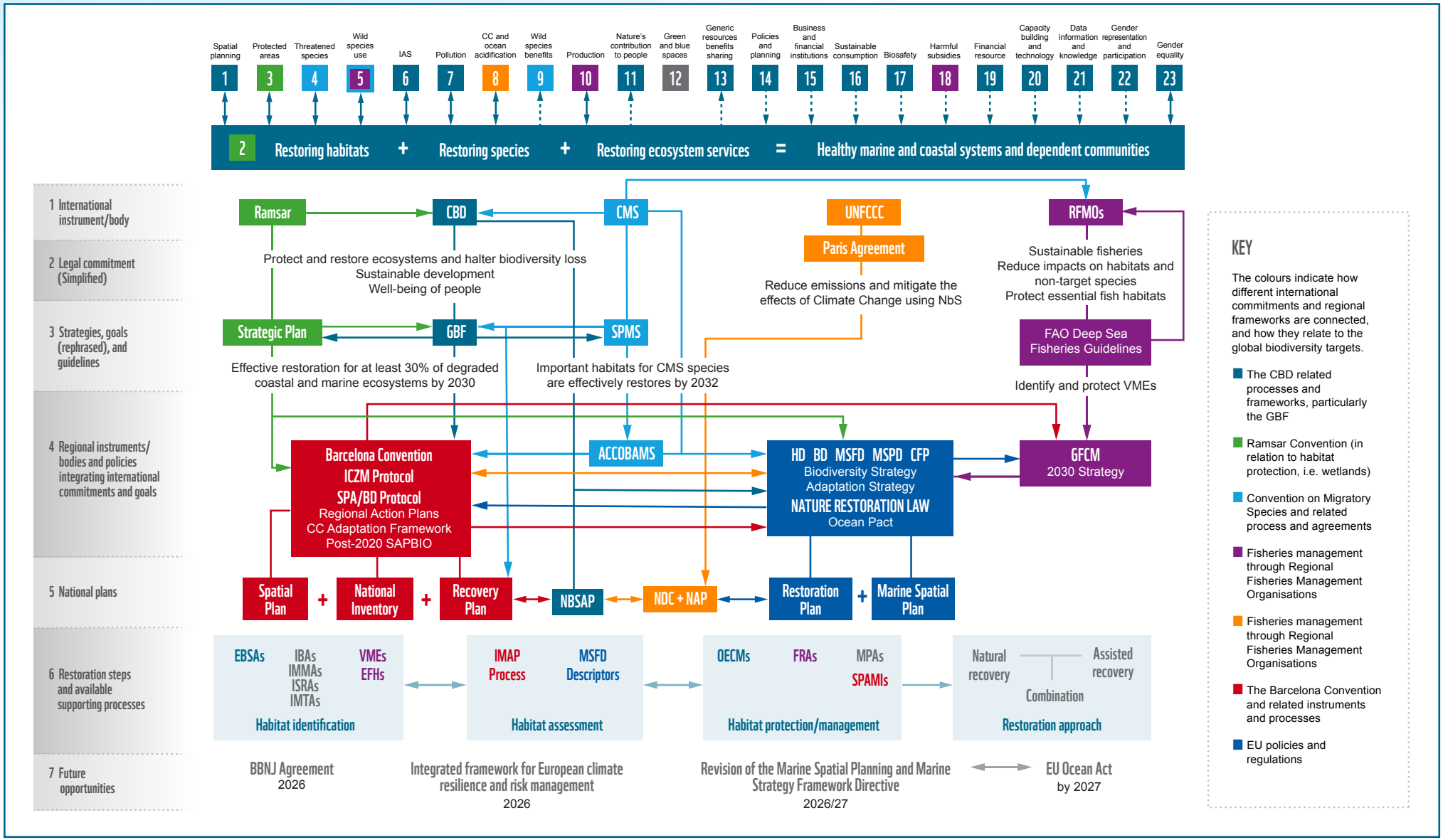

Figure 2. Schematic of the policy and legal landscape for coastal and marine ecosystem restoration (Target 2, GBF) as relevant to the Mediterranean region. Relations between Target 2 and other targets of the Kunming-Montreal Global Biodiversity Framework (GBF) are adopted from FAO, SCBD and SER (2024)[63]

63 FAO, SCBD & SER. (2024). *Delivering restoration outcomes for biodiversity and human well-being – Resource guide to Target 2 of the Kunming-Montreal Global Biodiversity Framework*. Rome, Montreal, Canada and Washington, DC. https://doi.org/10.4060/cd2925en

The success of the Post-2020 SAPBIO largely relies on the ambitions of, and cooperation among, Contracting Parties, with support from international organizations, institutions and fora. As Mediterranean countries develop their national inventories and plan for restorative actions, it is important that they stay focused on genuine actions that are backed by science and avoid the risk of greenwashing. Furthermore, these efforts must be well coordinated across borders to ensure the connectivity of marine habitats. Embracing a holistic approach that integrates and aligns marine restoration within existing laws, policies and national strategies is essential, along with ensuring active participation from local communities and other stakeholders. Monitoring and data collection will be crucial to adaptively manage restoration projects and measure their success, which will depend on continued political will, adequate funding from both public and private sectors, and regional collaboration.

OUR MISSION IS TO STOP THE DEGRADATION OF THE PLANET'S NATURAL ENVIRONMENT AND TO BUILD A FUTURE IN WHICH PEOPLE LIVE IN HARMONY WITH NATURE

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