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Co-funded by
the European Union

NHM Catalogue of best governance practices

Version 1
May 2026



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Handbook for Coastal Wetlands Governance

LIFE Olivares Vivos: Biodiversity restoration and market valorisation in Mediterranean olive groves

Monitoring Methodology for Small-Scale Fisheries within and around Marine Protected Areas (FISHMPABLUE2)

Monitoring Protocol for Floating & Ingested Marine Litter (MEDSEALITTER)

A Standardised and Replicable Socio-Ecological Vulnerability Assessment (MPA-ENGAGE)

Challenges addressed

Loss of Biodiversity

Conflicting uses / cumulative impacts

Ecosystem loss

Unsustainable harvesting incl. overfishing

Lack of technical capacity

Poor monitoring and enforcement

Poor governance and participation



ISEA Scheme

Integrated System for Evaluation of MPA Management Effectiveness

The **ISEA Scheme** (Integrated System for Evaluation of Marine Protected Area Management Effectiveness) is a standardised framework developed to improve management effectiveness across Mediterranean Marine Protected Areas (MPAs). It responds to persistent challenges such as uneven management performance, limited technical capacity, fragmented governance arrangements, and the absence of a harmonised assessment system.

The scheme uses a structured set of indicators covering governance, planning, resource allocation, monitoring, enforcement, and stakeholder engagement. Through periodic self-assessment supported by external review, MPA managers identify strengths and weaknesses, define improvement priorities, and establish roadmaps for adaptive management. By promoting comparability, accountability, and peer learning, the ISEA Scheme helps strengthen long-term MPA governance across the Mediterranean.

1. CONTEXT

MPAs in the Mediterranean face persistent environmental, social and economic challenges that limit their effectiveness. Environmentally, MPAs struggle to address biodiversity loss, habitat degradation and pressures such as overfishing, pollution and cumulative impacts from multiple uses. The lack of harmonised monitoring systems limits the ability to assess ecosystem health and respond adaptively.

Socially, weak governance frameworks, limited technical capacity and insufficient stakeholder engagement hinder effective management. Enforcement is often uneven and coordination between institutions remains fragmented.

Economically, limited financial and human resources constrain long-term management, affecting monitoring, enforcement and planning. The ISEA Scheme addresses these challenges by providing a standardised framework to assess performance, strengthen governance and support adaptive decision-making.

2. IMPLEMENTATION PROCESS

- Development and piloting phase: 2016–2020
- Progressive adoption and integration within MedPAN network: 2020–present
- Designed as a recurring cyclical assessment process.

Cyclic steps:

1. Initial self-assessment by the MPA management team using the ISEA indicator framework.
2. External review and validation to ensure objectivity and consistency.
3. Identification of governance, operational, and capacity gaps.
4. Development of a targeted improvement roadmap.
5. Integration of monitoring and reporting mechanisms aligned with MSFD and EcAp/IMAP principles.
6. Periodic reassessment to track progress and enable adaptive management.
7. Participation in regional peer-learning exchanges facilitated by MedPAN.

Replication requires institutional commitment, trained evaluators, stakeholder engagement mechanisms, and integration with national reporting systems.

Building Blocks

1. Standardised MPA management effectiveness assessment framework:



This building block consists of a harmonised, indicator-based framework used by Marine Protected Area (MPA) managers to assess management effectiveness. It covers key dimensions such as governance, planning, resource allocation, monitoring, enforcement and stakeholder engagement.

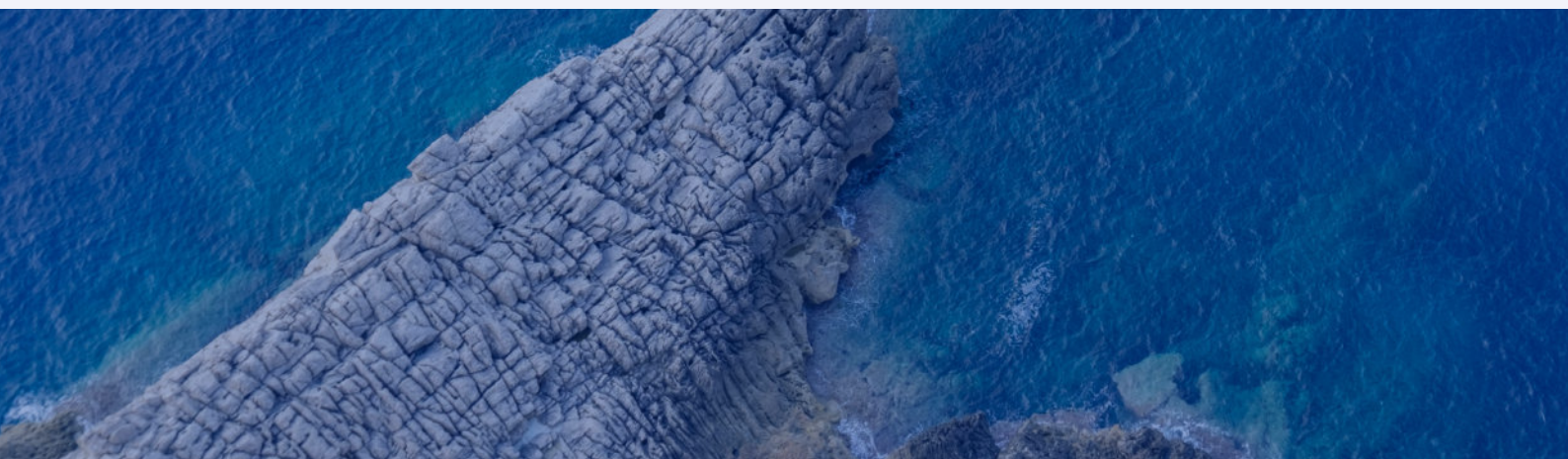
Enabling factors:

- Availability of baseline data and monitoring systems
- Technical capacity of MPA staff
- Institutional support from management authorities
- Clear and user-friendly methodology
- Alignment with existing governance frameworks

Lesson learned:

A standardised framework improves transparency and comparability, but its effectiveness depends on institutional ownership and consistent application. Clear guidance and training are essential to ensure correct use of indicators.

One challenge is the variability in data availability across MPAs, which can affect assessment quality. Simplifying indicators and allowing flexibility in data inputs can improve uptake. Regular updates and feedback loops are important to maintain relevance and usability.



2. External validation and adaptive improvement planning process



This building block combines external validation of assessment results with the development of targeted improvement plans. Following the self-assessment phase, independent experts review the results to ensure objectivity, consistency and comparability across MPAs.

Enabling factors

- Availability of qualified external reviewers
- Institutional commitment to transparency
- Resources for follow-up actions
- Integration into management planning cycles
- Support from regional networks (e.g. MedPAN)

Lesson learned

External validation increases credibility but requires trust and openness from participating institutions. Without follow-up, assessments risk becoming purely procedural exercises, so linking results to actionable improvement plans is critical. Ensuring that recommendations are realistic and adapted to local capacities improves implementation. Peer exchange and support mechanisms help maintain momentum and encourage continuous improvement.

3. IMPACTS



The ISEA Scheme has strengthened management effectiveness in pilot Marine Protected Areas by introducing a common framework for evaluating governance, planning, monitoring, enforcement, and stakeholder engagement. Its application has improved transparency in management performance and enabled MPA managers to identify priority gaps and define targeted improvement actions.

A major impact has been the creation of comparable assessment results across Mediterranean sites, allowing peer learning and more coherent regional capacity-building efforts. The scheme has also supported progressive alignment with international standards such as the IUCN Green List, reinforcing institutional credibility and long-term conservation planning.

Environmentally, stronger management effectiveness contributes to better protection of marine habitats and biodiversity by improving monitoring and adaptive responses to pressures such as overfishing and habitat degradation. Socially, the process promotes stakeholder participation and stronger governance dialogue between managers, institutions, and local actors. Economically, improved governance helps optimise resource allocation and strengthens the long-term sustainability of conservation investments.

Beneficiaries

MPA managers, national environmental authorities and regional MPA networks directly benefit. Indirect beneficiaries include coastal communities, fisheries stakeholders and conservation practitioners through improved governance and biodiversity.



 <https://natural-heritage.interreg-euro-med.eu/>

 <https://biodiversity.uma.es/mbpctoolscatalogue/tools/isea-scheme-to-standardise-mpa-management/>

Challenges addressed

Loss of Biodiversity

Pollution (incl. eutrophication and litter)

Ecosystem loss

Lack of public and decision maker's awareness

Poor governance and participation

Lack of technical capacity



Plastic busters MPAs

Marine Litter Prevention & Abatement Measures

Marine litter is one of the main pressures affecting Mediterranean marine ecosystems and Marine Protected Areas (MPAs). Plastics and other marine debris threaten biodiversity, damage habitats and affect ecosystem services and coastal communities. **Plastic busters MPAs** developed prevention and abatement measures to reduce marine litter impacts in Mediterranean MPAs through monitoring, governance, awareness-raising and coordinated management actions. The solution combines scientific assessment, stakeholder engagement and practical management tools to support more effective prevention and mitigation of marine litter.

By improving knowledge, strengthening cooperation between institutions and supporting evidence-based management, the solution contributes to reducing pollution pressures, protecting marine biodiversity and strengthening the resilience of Mediterranean marine ecosystems and coastal areas.

1. CONTEXT



Marine litter, particularly plastic pollution, is a major threat to Mediterranean marine ecosystems and Marine Protected Areas (MPAs). Marine debris affects biodiversity, damages habitats and ecosystem functions, and creates increasing pressures on coastal and marine environments. Limited coordination between institutions, insufficient technical capacity and low public awareness often reduce the effectiveness of prevention and mitigation measures. Fragmented monitoring systems and governance approaches also limit the implementation of integrated responses to marine litter.

Plastic busters MPAs addresses these challenges through coordinated prevention and abatement measures combining monitoring, risk assessment, stakeholder engagement and awareness-raising activities. The solution strengthens knowledge-sharing, supports evidence-based management and improves cooperation between institutions and stakeholders to reduce marine litter impacts and improve the conservation of Mediterranean marine ecosystems.

2. IMPLEMENTATION PROCESS



Marine litter monitoring and stakeholder engagement are closely interconnected and mutually reinforcing. Monitoring and risk assessment activities provide scientific information on pollution sources, affected habitats and pressures on marine biodiversity.

This evidence supports management decisions and helps prioritise prevention and mitigation measures.

At the same time, communication and awareness-raising activities help translate scientific findings into practical actions and behavioural change. Collaboration between MPA managers, researchers, institutions and local stakeholders strengthens shared understanding of marine litter impacts and improves participation in prevention efforts.

Together, these building blocks strengthen evidence-based management, improve regional cooperation and support more coordinated and effective responses to marine litter in Mediterranean Marine Protected Areas.

Building Blocks

1. Marine litter monitoring and risk assessment:



This building block supports the monitoring and assessment of marine litter and plastic pollution affecting Mediterranean Marine Protected Areas (MPAs). It combines scientific methodologies, field monitoring and risk assessment approaches to identify pollution sources, affected habitats and pressures on marine biodiversity.

Enabling factors:

- Standardised monitoring methodologies
- Scientific and technical expertise
- Institutional collaboration
- Access to environmental data
- Long-term monitoring commitment

Lesson learned:

Standardised monitoring approaches improve the comparability and usefulness of marine litter data across regions. Collaboration between researchers, managers and institutions strengthens data quality and supports more effective management responses.

2. Stakeholder engagement and awareness-raising for marine litter prevention



This building block promotes stakeholder engagement, communication and awareness-raising activities to reduce marine litter and strengthen prevention measures in Mediterranean MPAs. The approach involves public authorities, MPA managers, researchers, local communities and marine users in coordinated actions addressing plastic pollution and marine debris.

Enabling factors

- Participation of local stakeholders
- Effective communication strategies
- Institutional support
- Collaboration between sectors
- Public access to information

Lesson learned

Awareness and behavioural change require continuous engagement and collaboration between institutions and communities. Participatory approaches improve ownership of prevention measures and strengthen long-term support for marine conservation initiatives.

3. IMPACTS



Plastic busters MPAs strengthened the capacity of Mediterranean Marine Protected Areas (MPAs) to prevent and reduce marine litter and plastic pollution through monitoring, risk assessment, governance and awareness-raising measures.

Environmentally, the solution improved understanding of marine litter sources, distribution and impacts on marine biodiversity and sensitive habitats. Monitoring and prevention measures supported more effective management responses and contributed to reducing pollution pressures affecting marine ecosystems.

Socially, the solution strengthened cooperation and knowledge exchange between MPA managers, researchers, institutions and local stakeholders. Awareness-raising activities improved public understanding of marine litter impacts and encouraged more sustainable behaviours and participation in prevention efforts.

Economically, reducing marine litter contributes to the long-term sustainability of ecosystem services, coastal tourism and marine-based activities that depend on healthy marine ecosystems.

The solution demonstrates the importance of combining scientific monitoring, participatory governance and communication strategies to strengthen coordinated responses to marine litter in Mediterranean MPAs.

Beneficiaries

MPA managers, researchers, public authorities, local communities and marine users benefited from improved marine litter prevention and management measures. Mediterranean marine ecosystems and coastal areas also benefited from reduced pollution pressures.



<https://natural-heritage.interreg-euro-med.eu/>



<https://biodiversity.uma.es/mbpctoolscatalogue/tools/marine-litter-prevention-and-abatement-measures/>

Challenges addressed

Loss of Biodiversity

Ocean warming and acidification

Increasing temperatures

Ecosystem loss

Lack of public and decision maker's awareness

Poor governance and participation

Lack of technical capacity

Pollution (incl. eutrophication and litter)

Conflicting uses / cumulative impacts



Transnational monitoring and management toolbox for Mediterranean Marine Protected Areas

Mediterranean Marine Protected Areas (MPAs) face increasing environmental pressures linked to climate change, pollution, biodiversity loss and growing human activities. Effective conservation and management require coordinated monitoring systems, harmonised methodologies and stronger transnational cooperation.

The Transnational Monitoring and Management Toolbox was developed to support Mediterranean MPAs through practical tools, shared methodologies and coordinated monitoring and management approaches. The toolbox strengthens the collection and interpretation of environmental data, supports evidence-based decision-making and improves cooperation between managers, researchers and institutions across the region. By promoting harmonised monitoring, knowledge-sharing and adaptive management practices, the solution contributes to improving biodiversity conservation, ecosystem resilience and the long-term effectiveness of Mediterranean MPAs.

1. CONTEXT



Mediterranean Marine Protected Areas (MPAs) face increasing pressures linked to climate change, pollution, biodiversity loss and growing human activities. Fragmented monitoring systems and inconsistent management approaches often limit the ability of managers and institutions to assess environmental changes and respond effectively to emerging threats.

Limited technical capacity, insufficient coordination between institutions and lack of harmonised methodologies reduce the comparability and usefulness of environmental data across regions. These challenges can weaken evidence-based management and transnational cooperation. The Transnational Monitoring and Management Toolbox addresses these issues by providing harmonised tools, monitoring methodologies and management guidance for Mediterranean MPAs. The solution strengthens regional cooperation, improves environmental monitoring and supports adaptive, evidence-based conservation and management practices.

2. IMPLEMENTATION PROCESS



Harmonised monitoring methodologies and transnational cooperation mechanisms are closely interconnected and mutually reinforcing. Shared monitoring tools provide reliable and comparable environmental information that supports evidence-based management and adaptive conservation planning in Mediterranean Marine Protected Areas (MPAs).

At the same time, regional cooperation and knowledge-sharing strengthen the implementation of these methodologies by improving technical capacity, facilitating exchange of good practices and supporting coordinated responses to environmental pressures. The continuous interaction between scientific monitoring, management guidance and institutional collaboration strengthens regional governance and improves the effectiveness of conservation actions. Together, these building blocks contribute to stronger biodiversity protection, improved ecosystem resilience and more adaptive management of Mediterranean marine ecosystems.

Building Blocks

1. Harmonised monitoring methodologies for Mediterranean MPAs:



This building block provides harmonised monitoring methodologies and tools to support environmental assessment and management in Mediterranean Marine Protected Areas (MPAs). It helps managers and institutions collect, analyse and compare environmental data related to biodiversity, climate impacts and ecosystem pressures.

Enabling factors:

- Scientific and technical expertise
- Institutional cooperation
- Shared monitoring protocols
- Access to environmental data
- Capacity-building activities

Lesson learned:

Harmonised monitoring approaches improve regional cooperation and strengthen the quality and usefulness of environmental data. Long-term institutional collaboration and training are essential for consistent implementation.

2. Transnational cooperation and adaptive management support:



This building block strengthens collaboration and knowledge-sharing between Mediterranean MPA managers, researchers and institutions. Through shared tools, technical guidance and cooperative management approaches, the toolbox supports adaptive management and coordinated responses to environmental pressures affecting marine ecosystems.

Enabling factors

- Strong institutional partnerships
- Stakeholder engagement
- Regional cooperation frameworks
- Access to technical guidance
- Long-term support and coordination

Lesson learned

Transnational cooperation improves knowledge exchange and strengthens management effectiveness. Shared tools and methodologies help create more coordinated and adaptive responses to environmental challenges.

3. IMPACTS



The Transnational Monitoring and Management Toolbox strengthened the capacity of Mediterranean Marine Protected Areas (MPAs), researchers and institutions to monitor environmental changes and improve ecosystem management through harmonised methodologies and coordinated management approaches.

Environmentally, the solution improved the collection and comparability of environmental data related to biodiversity, ecosystem health and climate-related pressures. This supports more effective conservation planning, adaptive management and regional cooperation to address environmental threats affecting Mediterranean marine ecosystems.

Socially, the solution strengthened collaboration and knowledge exchange between MPA managers, researchers and institutions across the Mediterranean region. Capacity-building activities improved technical skills and supported wider uptake of harmonised monitoring and management practices.

Economically, improved environmental management and monitoring contribute to the long-term sustainability of ecosystem services and marine-based activities dependent on healthy marine ecosystems.

The solution demonstrates the importance of harmonised monitoring systems and transnational cooperation for improving conservation effectiveness and strengthening ecosystem resilience.

Beneficiaries

MPA managers, researchers, environmental institutions and coastal stakeholders benefited from improved monitoring tools, technical capacity and regional cooperation. Mediterranean marine ecosystems also benefited from stronger evidence-based management.



<https://natural-heritage.interreg-euro-med.eu/>

<https://biodiversity.uma.es/mbpctoolscatalogue/tools/transnational-monitoring-and-management-toolbox/>

Challenges addressed

Loss of Biodiversity

Ocean warming and acidification

Ecosystem loss

Lack of public and decision maker's awareness

Poor governance and participation

Lack of technical capacity

Conflicting uses / cumulative impacts



PHAROS4MPAs

Decision-support tool for sustainable Blue Economy in Marine Protected Areas

Marine Protected Areas (MPAs) increasingly face pressures from expanding Blue Economy sectors such as tourism, maritime transport, aquaculture and offshore activities. Balancing economic development with marine conservation requires tools that support sustainable planning and evidence-based decision-making. PHAROS4MPAs is a decision-support tool designed to help MPA managers, policymakers and stakeholders assess interactions between Blue Economy activities and marine ecosystems. The platform provides guidance, spatial information and management recommendations to support sustainable marine planning and reduce potential impacts on biodiversity and ecosystem services. By improving access to knowledge and supporting integrated management approaches, the solution strengthens the capacity of MPAs to address cumulative pressures, promote sustainable Blue Economy practices and improve the long-term conservation and resilience of Mediterranean marine ecosystems.

1. CONTEXT

Mediterranean Marine Protected Areas (MPAs) are increasingly affected by cumulative pressures from expanding Blue Economy sectors such as tourism, maritime transport, aquaculture and offshore activities. These pressures can contribute to ecosystem degradation, biodiversity loss and conflicts between conservation objectives and economic development. MPA managers and policymakers often face difficulties accessing integrated information and practical tools to assess interactions between maritime activities and marine ecosystems. Limited technical capacity and fragmented governance can reduce the effectiveness of marine spatial planning and conservation strategies.

PHAROS4MPAs addresses these challenges by providing a decision-support tool that helps assess the impacts of Blue Economy sectors on MPAs and supports more sustainable and evidence-based marine planning. The platform strengthens knowledge-sharing, integrated governance and adaptive management approaches for Mediterranean marine ecosystems.

2. IMPLEMENTATION PROCESS

The decision-support platform and the cross-sector governance approach are closely interconnected. The PHAROS4MPAs platform provides scientific knowledge, spatial information and practical guidance on interactions between Blue Economy sectors and marine ecosystems. This helps managers and policymakers identify cumulative pressures, ecosystem vulnerabilities and potential conflicts between conservation and economic activities.

At the same time, participatory governance and marine spatial planning processes support the practical application of this information. Collaboration between MPA managers, public authorities, researchers and stakeholders improves transparency, strengthens ecosystem-based management and facilitates more sustainable decision-making.

Together, these building blocks improve adaptive governance, support sustainable Blue Economy planning and strengthen the long-term conservation and resilience of Mediterranean marine ecosystems and biodiversity.

Building Blocks

1. Integrated decision-support platform for MPAs and Blue Economy sectors:

This building block provides a decision-support platform designed to help Marine Protected Areas (MPAs) assess interactions between Blue Economy sectors and marine ecosystems. The platform compiles scientific knowledge, spatial information, management recommendations and sector-specific guidance related to activities such as tourism, maritime transport, aquaculture and offshore infrastructure.

Enabling factors:

- Access to scientific and spatial information
- Collaboration between researchers, policymakers and MPA managers
- Institutional support for integrated marine planning
- Stakeholder engagement across Blue Economy sectors
- User-friendly and accessible platform design

Lesson learned:

Decision-support tools are more effective when scientific information is translated into practical guidance adapted to management needs. Collaboration between sectors and institutions improves acceptance and relevance of recommendations. Accessible and simplified information helps strengthen the use of ecosystem-based approaches in marine planning and governance processes.

2. Transnational cooperation and adaptive management support:

This building block promotes integrated governance and marine spatial planning approaches that strengthen coordination between Marine Protected Areas (MPAs), policymakers and Blue Economy sectors. It supports dialogue and collaboration between stakeholders to reduce conflicts between marine conservation objectives and economic activities.

Enabling factors

- Institutional coordination mechanisms
- Participation of multiple sectors and stakeholders
- Availability of spatial planning information
- Policy support for ecosystem-based management
- Capacity-building and knowledge-sharing

Lesson learned

Cross-sector collaboration is essential to address cumulative impacts and competing uses in marine areas. Early engagement of stakeholders improves transparency, trust and integration of conservation objectives into planning processes. Decision-support tools are most useful when combined with participatory governance and adaptive management approaches.

3. IMPACTS



PHAROS4MPAs strengthened the capacity of Marine Protected Areas (MPAs), policymakers and stakeholders to better manage interactions between Blue Economy sectors and marine ecosystems. By improving access to scientific knowledge, spatial information and practical guidance, the platform supports more evidence-based and ecosystem-based marine planning processes.

Environmentally, the solution contributed to improved identification and management of cumulative pressures affecting marine biodiversity and sensitive habitats. The platform supports stronger integration of conservation priorities into marine spatial planning and sustainable Blue Economy strategies.

Socially, the solution strengthened cooperation and dialogue between MPA managers, researchers, authorities and economic sectors. Improved access to information and guidance increased technical capacity and supported more transparent and participatory governance processes.

Economically, the platform helps support more sustainable Blue Economy activities by promoting planning approaches that reduce environmental conflicts and improve long-term ecosystem resilience and ecosystem services.

The solution demonstrates the value of integrated decision-support tools for balancing marine conservation objectives with sustainable economic development.

Beneficiaries

MPA managers, policymakers, researchers and Blue Economy stakeholders benefited from improved marine planning tools and governance processes. Mediterranean marine ecosystems and coastal communities also benefited from stronger ecosystem-based management.



 <https://natural-heritage.interreg-euro-med.eu/>

 <https://maritime-spatial-planning.ec.europa.eu/projects/pharos4mpas>

Challenges addressed

Loss of Biodiversity

Pollution (incl. eutrophication and litter)

Ecosystem loss

Lack of public and decision maker's awareness

Poor governance and participation

Lack of technical capacity



AMAre: Monitoring and assessment guidelines for marine litter in Marine Protected Areas

Marine litter is a growing threat to Mediterranean marine ecosystems and Marine Protected Areas (MPAs), affecting biodiversity, habitats and ecosystem services. Effective prevention and mitigation require reliable and harmonised monitoring and assessment methodologies. **AMAre** developed monitoring and assessment guidelines to support the collection, analysis and interpretation of marine litter data in Mediterranean MPAs. The guidelines provide standardised methodologies and practical recommendations to improve comparability of data, strengthen scientific knowledge and support evidence-based management decisions.

By improving monitoring capacity and promoting coordinated approaches between institutions, researchers and MPA managers, the solution contributes to better understanding of marine litter impacts, stronger pollution management and more effective conservation of Mediterranean marine ecosystems and biodiversity.

1. CONTEXT



Marine litter and plastic pollution are increasing pressures affecting Mediterranean marine ecosystems and Marine Protected Areas (MPAs). Pollution impacts marine biodiversity, degrades habitats and reduces ecosystem resilience and ecosystem services. One of the main challenges is the lack of harmonised monitoring and assessment methodologies across regions and institutions. Inconsistent data collection and limited technical capacity reduce the comparability and usefulness of marine litter information for management and decision-making. In addition, fragmented governance approaches and insufficient coordination between stakeholders can limit effective prevention and mitigation actions.

AMAre addresses these challenges by providing standardised monitoring and assessment guidelines for marine litter in MPAs. The solution strengthens scientific knowledge, improves data comparability and supports evidence-based management and regional cooperation to improve marine litter prevention and ecosystem conservation.

2. IMPLEMENTATION PROCESS



Standardised monitoring methodologies and capacity-building activities are closely interconnected and mutually reinforcing. Harmonised monitoring guidelines provide the technical basis for collecting reliable and comparable marine litter data across Mediterranean Marine Protected Areas (MPAs). This scientific information supports evidence-based management, improves understanding of pollution pressures and strengthens regional cooperation.

At the same time, training and knowledge-sharing activities help ensure that monitoring methodologies are correctly applied and consistently implemented by MPA managers, researchers and institutions. Capacity-building improves technical skills, facilitates exchange of good practices and strengthens long-term institutional collaboration. Together, these building blocks improve the quality and comparability of marine litter assessments, support coordinated management responses and contribute to stronger conservation and protection of Mediterranean marine ecosystems and biodiversity.

Building Blocks

1. Standardised marine litter monitoring methodologies:



This building block provides harmonised methodologies for monitoring and assessing marine litter in Mediterranean Marine Protected Areas (MPAs). It supports the collection, analysis and interpretation of data related to marine debris and plastic pollution affecting marine ecosystems and biodiversity. The guidelines improve the comparability and reliability of monitoring data across different regions and institutions. Standardised methodologies help strengthen scientific knowledge, support evidence-based management and facilitate coordinated responses to marine litter pressures.

Enabling factors:

- Scientific and technical expertise
- Standardised monitoring protocols
- Institutional cooperation
- Access to environmental data
- Capacity-building for monitoring teams

Lesson learned:

Harmonised monitoring methodologies improve data quality and facilitate regional cooperation. Continuous training and coordination between institutions are essential to ensure consistency and long-term monitoring effectiveness.

2. Knowledge-sharing and capacity-building for marine litter assessment:



This building block strengthens technical capacity and knowledge-sharing among MPA managers, researchers and institutions involved in marine litter assessment and management. Through guidance documents, training activities and collaborative exchanges, the solution supports the uptake and implementation of harmonised monitoring practices. The approach improves access to scientific knowledge and promotes coordinated management responses to marine litter and pollution pressures affecting Mediterranean marine ecosystems.

Enabling factors

- Collaboration between institutions and researchers
- Training opportunities
- Access to technical guidance
- Stakeholder engagement
- Long-term institutional support

Lesson learned

Capacity-building and knowledge exchange are essential for the effective implementation of monitoring methodologies. Strong institutional cooperation improves consistency, supports shared learning and strengthens regional management approaches.

3. IMPACTS



AMAre strengthened the capacity of Mediterranean Marine Protected Areas (MPAs), researchers and institutions to monitor and assess marine litter through harmonised methodologies and coordinated monitoring approaches.

Environmentally, the solution improved the quality, consistency and comparability of marine litter data, supporting better understanding of pollution pressures affecting marine biodiversity, habitats and ecosystem services. Standardised monitoring methodologies contribute to more effective evidence-based management and pollution prevention measures.

Socially, the solution strengthened collaboration and knowledge exchange between MPA managers, researchers and institutions across the Mediterranean region. Training and capacity-building activities improved technical skills and supported the uptake of harmonised monitoring practices.

Economically, improved monitoring and assessment contribute to more effective management of marine ecosystems and support the long-term sustainability of coastal activities and ecosystem services affected by marine litter pollution.

Overall, the solution demonstrates the importance of coordinated monitoring frameworks and regional cooperation for improving marine litter management and supporting the conservation of Mediterranean marine ecosystems.

Beneficiaries

MPA managers, researchers, environmental institutions and monitoring teams benefited from improved marine litter assessment methodologies and technical capacity. Mediterranean marine ecosystems also benefited from stronger pollution monitoring and management.



<https://natural-heritage.interreg-euro-med.eu/>

<https://repository.oceanbestpractices.org/items/5a3c6e20-b5c0-415c-b7c2-07fe1dd60fe5>

Challenges addressed

Loss of Biodiversity

Ocean warming and acidification

Ecosystem loss

Increasing temperatures

Poor governance and participation

Lack of technical capacity



Climate vulnerability assessment tool for Mediterranean Marine Protected Areas

Climate change is increasingly affecting Mediterranean marine ecosystems and the effectiveness of Marine Protected Areas (MPAs). Rising sea temperatures, biodiversity loss and ecosystem degradation require tools that help managers understand vulnerability and prioritise adaptation measures. This solution provides a climate vulnerability assessment tool designed to support Mediterranean MPAs in identifying ecosystems, habitats and management areas that are most exposed and sensitive to climate change impacts. Developed within the framework of MPA Engage, the tool combines environmental information, vulnerability indicators and participatory assessment approaches to support evidence-based decision-making and climate adaptation planning. By improving understanding of climate risks and supporting adaptive management, the solution strengthens the resilience of MPAs and contributes to the long-term conservation of Mediterranean marine ecosystems and biodiversity.

1. CONTEXT



Mediterranean marine ecosystems and Marine Protected Areas (MPAs) are increasingly affected by climate change impacts such as rising sea temperatures, biodiversity loss and ecosystem degradation. Many MPAs lack practical tools and accessible methodologies to assess climate vulnerability and prioritise adaptation measures. Limited technical capacity, fragmented environmental information and insufficient integration of climate risks into management processes can reduce the effectiveness of conservation and adaptation strategies.

The climate vulnerability assessment tool addresses these challenges by supporting Mediterranean MPAs in identifying vulnerable ecosystems, habitats and management areas exposed to climate-related pressures. Through vulnerability indicators, environmental information and participatory assessment approaches, the tool strengthens evidence-based decision-making and supports adaptive management and climate resilience planning.

2. IMPLEMENTATION PROCESS



The climate vulnerability assessment methodology and the participatory adaptation planning process are closely interconnected and mutually reinforcing. The vulnerability assessment tool generates scientific and management information on ecosystems, habitats and management areas that are most exposed and sensitive to climate change impacts.

This information provides the basis for adaptive management and climate adaptation planning processes within Mediterranean MPAs. Through participatory approaches, researchers, MPA managers and institutions collaborate to interpret assessment results, prioritise adaptation measures and integrate climate considerations into management strategies. Management needs and stakeholder knowledge help refine vulnerability assessments and improve the relevance of indicators and adaptation priorities. Continuous interaction between scientific assessment and participatory planning strengthens institutional coordination, improves evidence-based decision-making and supports more adaptive and resilient governance processes. Together, these building blocks help Mediterranean MPAs better understand climate risks, strengthen adaptation capacity and improve the long-term conservation and resilience of marine ecosystems and biodiversity.

Building Blocks

1. Climate vulnerability assessment methodology for MPAs:



This building block provides a methodology to assess climate vulnerability in Mediterranean Marine Protected Areas (MPAs). It combines environmental information, vulnerability indicators and assessment criteria to help identify ecosystems, habitats and management areas that are most exposed and sensitive to climate change impacts.

Enabling factors:

- Availability of environmental and climate information
- Collaboration between scientists and MPA managers
- Technical expertise in climate vulnerability assessment
- Institutional support for adaptive management
- Participatory approaches and stakeholder engagement

Lesson learned:

Climate vulnerability assessments are more effective when scientific information is combined with management experience and local knowledge. Participatory approaches improve ownership of results and facilitate the integration of climate adaptation into management processes. Simple and adaptable methodologies support replication across different MPAs and governance contexts.

2. Participatory climate adaptation planning for MPAs:



This building block supports the integration of climate vulnerability assessments into adaptive management and climate adaptation planning processes for Mediterranean MPAs. It promotes collaboration between researchers, MPA managers and institutions to translate vulnerability information into practical management actions.

Enabling factors

- Institutional commitment to climate adaptation
- Collaboration between scientific and management actors
- Access to vulnerability assessment results
- Capacity-building and technical support
- Participatory governance processes

Lesson learned

Climate adaptation planning is more effective when stakeholders participate in the assessment and prioritisation process. Continuous dialogue between science and management improves the practical use of vulnerability information. Adaptive planning processes should remain flexible to respond to changing environmental conditions and new scientific knowledge.

3. IMPACTS



The climate vulnerability assessment tool strengthened the capacity of Mediterranean Marine Protected Areas (MPAs) to identify and respond to climate change risks affecting marine ecosystems and biodiversity. By improving understanding of ecosystem vulnerability, the tool supports more evidence-based and adaptive management processes.

Environmentally, the solution improved the identification of climate-sensitive habitats, ecosystem degradation risks and priority areas for adaptation measures. The tool supports stronger climate resilience planning and contributes to the long-term conservation of marine biodiversity and ecosystem functions.

Socially, the solution strengthened collaboration and knowledge exchange between researchers, MPA managers and institutions. Participatory assessment processes improved technical capacity, stakeholder engagement and the integration of climate considerations into management planning.

Economically, improved climate adaptation and ecosystem management contribute to the long-term sustainability of ecosystem services that support coastal communities and marine-based economic activities.

The solution demonstrates the value of climate vulnerability assessments as practical tools for supporting adaptive governance and strengthening resilience in Mediterranean MPAs.

Beneficiaries

MPA managers, researchers, environmental institutions and technical stakeholders benefited from improved climate risk assessment and adaptation planning. Mediterranean marine ecosystems and coastal communities also benefited from stronger ecosystem resilience.



<https://natural-heritage.interreg-euro-med.eu/>

<https://futureoceanslab.org/vulnerability-tool/>

Challenges addressed

Loss of Biodiversity

Ocean warming and acidification

Ecosystem loss

Increasing temperatures

Poor governance and participation

Lack of technical capacity



T-MEDNET Platform (MPA-ADAPT & MPA Engage)

Climate change is increasingly affecting Mediterranean marine ecosystems, causing rising sea temperatures, biodiversity loss and ecosystem degradation. Marine Protected Areas (MPAs) require reliable environmental information and adaptive management approaches to respond effectively to these impacts. The T-MEDNet platform supports long-term monitoring of marine temperature and climate change impacts across Mediterranean MPAs. Developed through initiatives such as MPA-ADAPT and MPA Engage, the platform combines scientific monitoring, data sharing and collaboration between researchers, MPA managers and institutions. It provides tools and environmental information that support climate adaptation planning and evidence-based management.

By strengthening monitoring capacity, knowledge exchange and adaptive governance, the solution improves the resilience of Mediterranean MPAs and supports the long-term conservation of marine biodiversity and ecosystems.

1. CONTEXT



Mediterranean marine ecosystems are increasingly affected by climate change impacts such as rising sea temperatures, biodiversity loss and ecosystem degradation. Marine Protected Areas (MPAs) require reliable environmental information and long-term monitoring systems to understand climate-related changes and support adaptive management.

However, limited technical capacity, fragmented environmental data and insufficient coordination among institutions can reduce the effectiveness of climate adaptation and conservation strategies.

The T-MEDNet platform addresses these challenges by supporting collaborative monitoring of marine temperature and climate impacts across Mediterranean MPAs. Through scientific data collection, information sharing and cooperation between researchers, MPA managers and institutions, the platform strengthens knowledge-based decision-making and supports more adaptive and resilient marine governance.

2. IMPLEMENTATION PROCESS



The collaborative monitoring network and the knowledge-sharing platform are closely interconnected and mutually reinforcing. Long-term marine temperature monitoring generates scientific data and environmental information on climate change impacts affecting Mediterranean marine ecosystems and MPAs.

This information is shared and analysed through the T-MEDNet platform, which transforms monitoring results into accessible knowledge that can support adaptive management and climate adaptation planning. The platform facilitates collaboration between researchers, MPA managers and institutions, improving the exchange of experiences, methodologies and scientific assessments across the Mediterranean region. At the same time, management needs identified by MPAs help guide monitoring priorities and strengthen the practical relevance of collected data. Continuous interaction between science, monitoring and governance improves evidence-based decision-making and supports more adaptive and resilient marine conservation strategies. Together, these building blocks strengthen regional cooperation, improve climate knowledge and support the long-term conservation and adaptive management of Mediterranean marine ecosystems and protected areas.

Building Blocks

1. Collaborative marine temperature monitoring network:



This building block supports long-term monitoring of marine temperature and climate change impacts across Mediterranean Marine Protected Areas (MPAs). Through the T-MEDNet platform, researchers, MPA managers and institutions collaborate to collect, share and analyse environmental data from different monitoring sites.

Enabling factors:

- Long-term collaboration between scientific institutions and MPAs
- Shared monitoring methodologies and protocols
- Access to monitoring technologies and environmental data
- Institutional support for long-term monitoring
- Knowledge exchange between researchers and managers

Lesson learned:

Long-term and harmonised monitoring is essential to understand climate change impacts on marine ecosystems. Cooperation between scientists and MPA managers improves the relevance and practical use of monitoring data. Regional collaboration strengthens knowledge exchange and increases the comparability of environmental information across sites.

2. Knowledge-sharing platform for adaptive MPA management:



This building block focuses on the use of the T-MEDNet platform as a knowledge-sharing and adaptive management tool for Mediterranean MPAs. The platform provides access to environmental information, monitoring results and scientific resources that support climate adaptation planning and ecosystem management.

Enabling factors

- Open access to monitoring information and scientific resources
- Cooperation between researchers and MPA managers
- Institutional commitment to knowledge-sharing
- Capacity-building and technical support
- Regional coordination mechanisms

Lesson learned

Environmental data becomes more effective when translated into accessible and practical information for managers and decision-makers. Continuous interaction between science and governance strengthens adaptive management processes. Knowledge-sharing platforms are valuable tools for scaling up climate adaptation efforts across multiple protected areas and institutions.

3. IMPACTS



The T-MEDNet platform strengthened long-term monitoring of climate change impacts in Mediterranean marine ecosystems and Marine Protected Areas (MPAs). By improving access to harmonised environmental data and scientific information, the platform supports more evidence-based and adaptive marine management processes.

Environmentally, the solution improved understanding of rising sea temperatures and climate-related impacts affecting marine biodiversity and sensitive habitats. Long-term monitoring contributes to stronger ecosystem assessments, improved climate adaptation planning and more resilient MPA management.

Socially, the platform strengthened cooperation and knowledge exchange between researchers, MPA managers and institutions across the Mediterranean region. Capacity-building and access to shared information improved technical knowledge and adaptive governance processes.

Economically, stronger ecosystem management and climate adaptation contribute to the long-term sustainability of ecosystem services that support coastal communities and marine-based economic activities.

Overall, the solution demonstrates the value of collaborative monitoring networks and knowledge-sharing platforms for strengthening climate resilience and marine conservation in Mediterranean MPAs.

Beneficiaries

Researchers, MPA managers, environmental institutions & local authorities benefited from improved climate monitoring & environmental information. Mediterranean marine ecosystems & coastal communities also benefited from stronger adaptive management capacities.



 <https://natural-heritage.interreg-euro-med.eu/>

 <https://t-mednet.org/>

 <https://biodiversity.uma.es/mbpctoolscatalogue/tools/t-mednet-platform/>



Challenges addressed

Loss of Biodiversity

Increasing temperatures

Ecosystem loss

Pollution (incl. eutrophication and litter)

Poor governance and participation

Lack of technical capacity



EcoSUSTAIN

Water Monitoring Implementation: Short-Term Monitoring System (STMS) & Long-Term Monitoring System (LTMS)

Wetlands and coastal ecosystems in the Mediterranean are increasingly affected by pollution, climate change and human pressures, making effective water quality monitoring essential for sustainable ecosystem management. Developed within the ECOSUSTAIN project, this solution supports the implementation of integrated water monitoring systems for wetlands and protected areas. It combines monitoring technologies, environmental data collection and management approaches to improve the assessment of water quality and ecosystem conditions. The solution also strengthens cooperation among local authorities, protected area managers and technical stakeholders.

By improving monitoring capacity and access to environmental information, the solution supports evidence-based management, strengthens ecosystem conservation and contributes to the long-term sustainability and resilience of Mediterranean wetlands and coastal ecosystems.

1. CONTEXT

Mediterranean wetlands and coastal ecosystems are increasingly affected by pollution, biodiversity loss and climate change pressures, threatening ecosystem health and water quality. Limited monitoring capacity and insufficient environmental data can reduce the effectiveness of ecosystem management and conservation actions. Protected areas and local authorities often face technical and governance challenges when implementing integrated water monitoring systems and translating environmental information into management decisions.

The ECOSUSTAIN solution addresses these challenges by supporting the implementation of integrated water monitoring approaches for wetlands and protected areas. Through environmental data collection, monitoring technologies and cooperation among stakeholders, the solution strengthens evidence-based management, improves understanding of ecosystem conditions and supports more sustainable and resilient ecosystem governance.

2. IMPLEMENTATION PROCESS

Integrated water quality monitoring systems and environmental data management processes are closely interconnected and mutually reinforcing. Monitoring systems generate environmental data and information on water quality, ecosystem conditions and climate-related pressures affecting wetlands and coastal ecosystems.

This information is then organised, analysed and interpreted through environmental data management processes that support evidence-based governance and adaptive management. Accessible and reliable environmental data enables protected area managers, local authorities and technical stakeholders to identify environmental trends, assess ecosystem health and prioritise management responses.

At the same time, governance and management needs help define monitoring priorities and improve the relevance of collected data. Continuous interaction between monitoring activities and data-based decision-making strengthens institutional coordination, improves ecosystem management processes and supports more sustainable and resilient wetland governance. Together, these building blocks contribute to better environmental assessments, more informed decision-making and the long-term conservation of Mediterranean wetlands and coastal ecosystems.

Building Blocks

1. Integrated water quality monitoring systems for wetlands:



This building block supports the implementation of integrated water monitoring systems for wetlands and protected areas. It combines monitoring technologies, environmental indicators and data collection approaches to assess water quality and ecosystem conditions in coastal and wetland environments.

Enabling factors:

- Access to monitoring technologies and equipment
- Technical expertise and training
- Coordination among local authorities and protected area managers
- Availability of environmental data management systems
- Long-term institutional support for monitoring activities

Lesson learned:

Integrated monitoring systems improve understanding of ecosystem conditions and support more informed management decisions. Long-term monitoring is essential to identify trends and evaluate environmental changes over time. Technical capacity-building and institutional coordination are critical for ensuring the sustainability of monitoring systems.

2. Environmental data management for adaptive ecosystem governance:



This building block focuses on the management and use of environmental data generated through water monitoring activities. It supports the organisation, analysis and interpretation of monitoring information to strengthen ecosystem governance and management processes.

Enabling factors

- Access to reliable environmental information
- Institutional coordination mechanisms
- Technical capacity for data analysis and interpretation
- Stakeholder cooperation and information sharing
- Integration of monitoring results into management processes

Lesson learned

Environmental data is most effective when it is accessible, understandable and linked to management decisions. Collaboration between technical experts and decision-makers improves the practical use of monitoring information. Long-term institutional commitment is essential to maintain monitoring systems and ensure continuity of environmental assessments.

3. IMPACTS



The ECOSUSTAIN solution strengthened water quality monitoring and environmental data management capacities in Mediterranean wetlands and protected areas. By improving access to reliable environmental information, the solution supports more evidence-based and adaptive ecosystem management processes.

Environmentally, the implementation of integrated monitoring systems improved the assessment of water quality and ecosystem conditions, supporting the identification of pollution pressures and ecosystem degradation risks. Better environmental information contributes to stronger wetland conservation and ecosystem resilience.

Socially, the solution strengthened cooperation and knowledge exchange between local authorities, protected area managers and technical stakeholders. Capacity-building activities improved technical skills and supported more coordinated environmental governance processes.

Economically, improved monitoring and ecosystem management contribute to the long-term sustainability of ecosystem services that support local communities and coastal economies.

The solution demonstrates that integrated environmental monitoring systems can improve governance, strengthen ecosystem management and support the sustainable conservation of Mediterranean wetlands and coastal ecosystems.

Beneficiaries

Protected area managers, local authorities and technical stakeholders benefited through improved monitoring capacity and environmental data access. Wetlands, coastal ecosystems and local communities also benefited from strengthened ecosystem management.



<https://natural-heritage.interreg-euro-med.eu/>



<https://biodiversity.uma.es/ecosustain-project/>

Challenges addressed

Loss of Biodiversity

Ocean warming and acidification

Ecosystem loss

Increasing temperatures

Poor governance and participation

Lack of technical capacity

Sea level rise



Climate Change Participatory Action Plans

Climate change poses increasing threats to marine and coastal ecosystems, affecting biodiversity, ecosystem services and the livelihoods of communities dependent on marine resources. Marine Protected Areas (MPAs) require adaptive and participatory management approaches to strengthen resilience and respond effectively to climate-related impacts.

This solution provides participatory approaches and practical guidance to support the development of climate change action plans for MPAs. It promotes stakeholder engagement, collaborative planning and the integration of climate considerations into management processes. The approach facilitates dialogue between MPA managers, local communities, scientists and authorities to identify vulnerabilities, define priorities and develop adaptive responses. By strengthening participatory climate planning, the solution supports more resilient marine ecosystems, improves governance processes and enhances the capacity of MPAs to address climate change challenges.

1. CONTEXT

Marine and coastal ecosystems are increasingly affected by climate change impacts such as rising temperatures, sea level rise and biodiversity loss. These pressures threaten ecosystem resilience, marine resources and the livelihoods of communities dependent on coastal and marine environments.

Marine Protected Areas (MPAs) often face difficulties integrating climate change considerations into management processes. Limited technical capacity, insufficient stakeholder participation and weak governance structures can reduce the effectiveness of adaptation planning and implementation.

The solution addresses these challenges by supporting participatory climate change action planning processes for MPAs. Through stakeholder engagement, collaborative governance and the integration of scientific and local knowledge, the approach helps identify vulnerabilities, define adaptation priorities and strengthen the resilience of marine ecosystems and coastal communities.

2. IMPLEMENTATION PROCESS

Participatory climate vulnerability assessments and climate action planning processes are closely interconnected and mutually reinforcing. Vulnerability assessments provide the knowledge base for understanding climate-related risks affecting Marine Protected Areas (MPAs), including ecosystem degradation, biodiversity loss and governance challenges. By combining scientific information with local knowledge and stakeholder participation, these assessments help identify priorities and adaptation needs.

Building on this foundation, participatory climate action planning translates identified vulnerabilities into concrete management responses and adaptation measures. Stakeholder engagement throughout the planning process strengthens collaboration, improves transparency and supports shared ownership of adaptation strategies.

At the same time, the implementation of climate action plans generates new knowledge and practical experience that can inform future assessments and adaptive management processes. Together, these components support more resilient and adaptive governance systems for MPAs, improving preparedness, strengthening ecosystem resilience and enhancing the long-term conservation of marine and coastal ecosystems.

Building Blocks

1. Participatory climate vulnerability assessment for MPAs:



This building block supports the identification and assessment of climate change vulnerabilities affecting Marine Protected Areas (MPAs). It combines scientific information, local knowledge and stakeholder participation to analyse climate-related risks such as biodiversity loss, rising temperatures and sea level rise.

Enabling factors:

- Access to climate and ecological information
- Participation of local stakeholders and experts
- Institutional support for climate adaptation planning
- Availability of facilitation and coordination capacity
- Integration of scientific and local knowledge

Lesson learned:

Participatory assessments improve ownership and understanding of climate risks among stakeholders. Combining scientific and local knowledge strengthens the relevance of adaptation planning. Climate vulnerability assessments must remain flexible and adaptive as environmental conditions and knowledge evolve over time.

2. Participatory climate action planning for adaptive MPA management:



This building block focuses on the development of participatory climate change action plans for Marine Protected Areas. It supports collaborative processes to define adaptation priorities, management responses and governance arrangements that strengthen resilience to climate change impacts.

Enabling factors

- Inclusive stakeholder participation processes
- Institutional commitment to adaptation planning
- Governance coordination among authorities
- Capacity-building for managers and stakeholders
- Long-term planning and monitoring mechanisms

Lesson learned

Climate adaptation planning is more effective when stakeholders are involved from the beginning of the process. Participation improves legitimacy, ownership and implementation of adaptation measures.

Adaptive management approaches are essential because climate impacts and vulnerabilities evolve over time.

3. IMPACTS



The solution has strengthened the capacity of Marine Protected Areas (MPAs) to integrate climate change considerations into management and governance processes. Through participatory climate vulnerability assessments and action planning, the solution supports more adaptive and resilient management approaches.

Environmentally, the approach contributes to improving the resilience of marine and coastal ecosystems affected by climate change impacts such as biodiversity loss, rising temperatures and sea level rise. It supports the identification of adaptation priorities and the integration of climate responses into conservation planning.

Socially, the solution enhances stakeholder participation, collaboration and knowledge exchange between MPA managers, local communities, scientists and authorities. Participatory processes improve transparency, shared ownership and the acceptance of adaptation measures.

Economically, strengthening climate resilience helps protect ecosystem services and marine resources that support local livelihoods and coastal economies.

The solution demonstrates that participatory climate planning improves the adaptive capacity and long-term sustainability of Marine Protected Areas.

Beneficiaries

Researchers, MPA managers, environmental institutions & local authorities benefited from improved climate monitoring & environmental information. Mediterranean marine ecosystems & coastal communities also benefited from stronger adaptive management capacities.



 <https://natural-heritage.interreg-euro-med.eu/>

 <https://biodiversity.uma.es/mbpctoolscatalogue/tools/climate-change-participatory-action-plans/>

Challenges addressed

Conflicting uses / cumulative impacts

Lack of technical capacity

Unsustainable harvesting incl. overfishing

Lack of public and decision maker's awareness

Poor governance and participation



Governance Toolkit for Managing Small Scale Fisheries in Marine Protected Areas

Small-scale fisheries (SSF) are closely linked to the ecological, social and economic sustainability of Mediterranean Marine Protected Areas (MPAs). However, weak governance structures, limited stakeholder participation and conflicts between conservation and fisheries management often reduce the effectiveness of management measures.

This toolkit provides practical guidance and governance approaches to support the sustainable management of SSF within MPAs. It promotes participatory governance, co-management practices and collaboration between fishermen, MPA managers and authorities. The toolkit also supports decision-making processes, conflict resolution and the integration of local knowledge into management strategies. By strengthening governance and stakeholder engagement, the solution contributes to more sustainable fisheries, improved compliance with conservation measures and enhanced marine biodiversity protection.

1. CONTEXT



Small-scale fisheries (SSF) in Mediterranean Marine Protected Areas (MPAs) often face governance challenges that limit both conservation effectiveness and the sustainability of fisheries activities. Conflicts between resource users, weak coordination among stakeholders and limited participation in decision-making processes can reduce compliance with management measures.

Environmentally, unsustainable fishing practices and cumulative pressures on marine ecosystems contribute to biodiversity loss and ecosystem degradation. Socially, insufficient technical capacity, lack of awareness and weak governance structures hinder collaboration between fishermen, MPA managers and authorities.

The Governance Toolkit addresses these challenges by providing practical approaches and tools to strengthen participatory governance and co-management of SSF in MPAs. It supports dialogue, stakeholder engagement and collaborative decision-making, contributing to more sustainable fisheries management and improved marine biodiversity protection.

2. IMPLEMENTATION PROCESS



Participatory governance frameworks and practical governance tools are closely interconnected and mutually reinforcing. Governance frameworks establish the foundations for inclusive decision-making by defining stakeholder roles, collaboration mechanisms and co-management approaches involving fishermen, MPA managers and authorities.

Building on these frameworks, governance tools provide practical methods to facilitate stakeholder engagement, dialogue, conflict management and participatory planning processes. These tools help operationalise co-management by improving communication, transparency and coordination among stakeholders.

At the same time, practical implementation of governance tools strengthens governance frameworks by generating trust, increasing stakeholder ownership and supporting adaptive management processes. Together, these components contribute to more effective and inclusive governance systems for small-scale fisheries in Marine Protected Areas, improving compliance, reducing conflicts and supporting sustainable fisheries management and marine biodiversity conservation.

Building Blocks

1. Participatory governance frameworks for small-scale fisheries in MPAs:



This building block provides governance approaches and practical guidance to support participatory management of small-scale fisheries (SSF) within Marine Protected Areas (MPAs). It promotes collaboration between fishermen, MPA managers and authorities through inclusive governance structures and shared decision-making processes.

Enabling factors:

- Institutional support for participatory governance
- Commitment from fisheries stakeholders and authorities
- Transparent communication processes
- Recognition of local ecological knowledge
- Long-term stakeholder engagement

Lesson learned:

Participatory governance requires continuous dialogue and trust-building among stakeholders. Governance structures must be adapted to local realities and institutional contexts. Early involvement of fishermen improves ownership and acceptance of management measures. Long-term engagement is essential to maintain collaboration and effective co-management.

2. Governance tools for collaborative fisheries management:



This building block focuses on practical governance tools that support collaboration and decision-making for sustainable fisheries management in Marine Protected Areas. The toolkit includes approaches for stakeholder mapping, dialogue facilitation, conflict management and participatory planning.

Enabling factors

- Availability of governance and facilitation capacity
- Institutional coordination mechanisms
- Access to stakeholder engagement processes
- Political and administrative support
- Capacity-building for managers and stakeholders

Lesson learned

Governance tools are most effective when adapted to local contexts and stakeholder needs. Flexibility and continuous learning are essential for successful implementation. Conflict management and transparent communication are critical to sustaining collaboration among stakeholders over time.

3. IMPACTS



The Governance Toolkit has strengthened participatory governance and co-management practices for small-scale fisheries (SSF) within Mediterranean Marine Protected Areas (MPAs). By improving collaboration between fishermen, MPA managers and authorities, the solution contributes to more inclusive and transparent decision-making processes.

Environmentally, improved governance and stakeholder engagement support more sustainable fisheries management, contributing to reduced pressures on marine ecosystems and better protection of biodiversity. Increased participation also improves acceptance and compliance with conservation measures.

Socially, the toolkit enhances communication, trust and cooperation among stakeholders, strengthening the role of fishing communities in governance processes and supporting knowledge exchange between local actors and institutions.

Economically, more sustainable fisheries management contributes to the long-term viability of small-scale fisheries and the preservation of ecosystem services that support local livelihoods and coastal economies.

The solution demonstrates that participatory governance approaches improve the effectiveness and legitimacy of MPA management and support sustainable marine resource use.

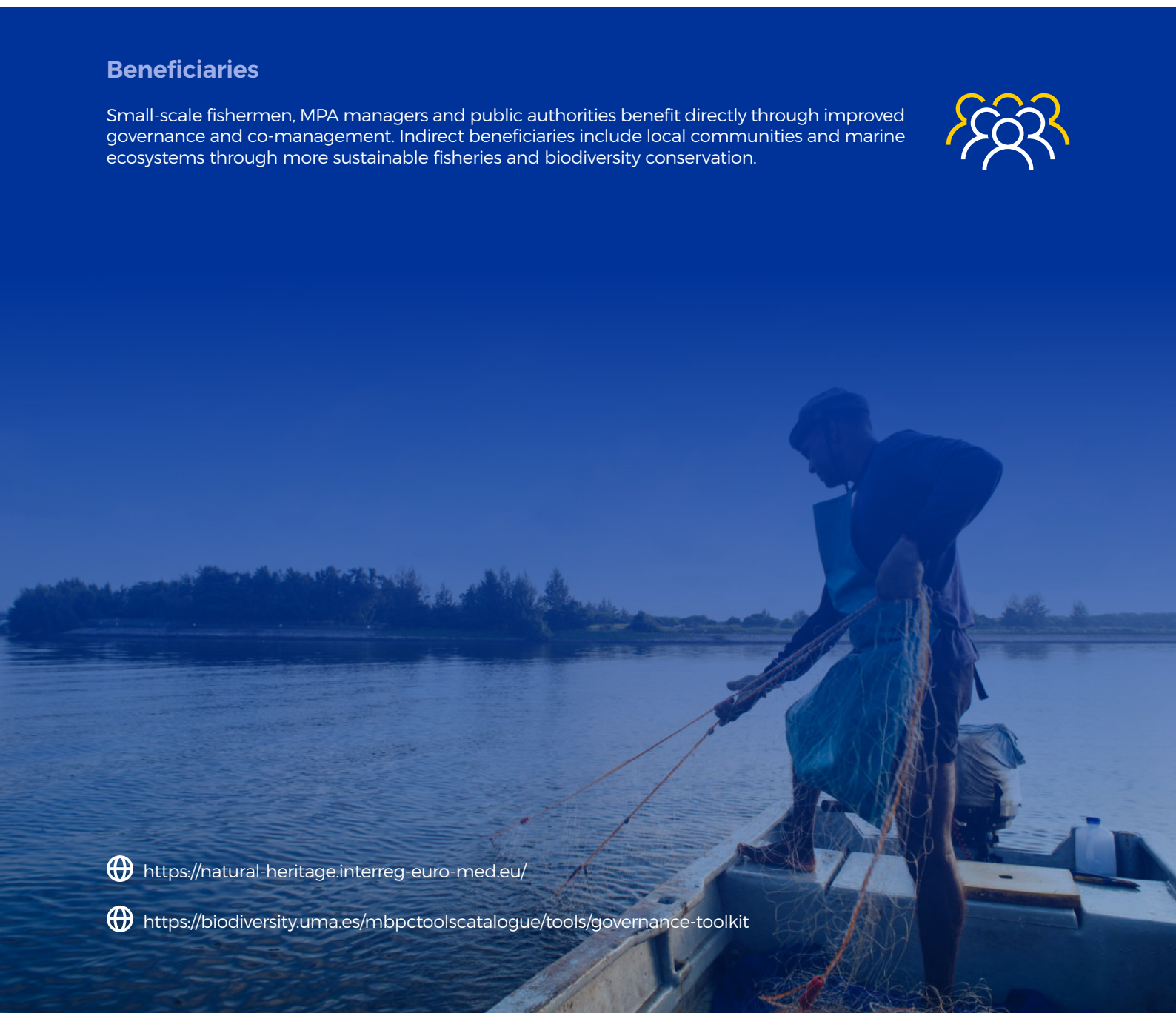
Beneficiaries

Small-scale fishermen, MPA managers and public authorities benefit directly through improved governance and co-management. Indirect beneficiaries include local communities and marine ecosystems through more sustainable fisheries and biodiversity conservation.



 <https://natural-heritage.interreg-euro-med.eu/>

 <https://biodiversity.uma.es/mbpctoolscatalogue/tools/governance-toolkit>



Challenges addressed

Conflicting uses / cumulative impacts

Lack of technical capacity

Unsustainable harvesting incl. overfishing

Lack of public and decision maker's awareness

Poor governance and participation



Fishermen's Engagement in Mediterranean MPA

Fishermen's engagement is essential for the effective management of Marine Protected Areas (MPAs), particularly in the Mediterranean where small-scale fisheries play an important ecological, social and economic role. However, conflicts between conservation objectives and fishing activities, combined with limited participation in decision-making, often reduce compliance and management effectiveness.

This solution provides practical approaches and tools to strengthen the involvement of fishermen in MPA governance and management processes. It promotes dialogue, trust-building and collaboration between fishermen, MPA managers and authorities, supporting participatory decision-making and co-management practices. By improving stakeholder engagement and communication, the solution contributes to reducing conflicts, increasing acceptance of conservation measures and supporting more sustainable fisheries and marine biodiversity protection.

1. CONTEXT



Mediterranean Marine Protected Areas (MPAs) often face tensions between conservation objectives and fishing activities. Unsustainable fishing practices and conflicting uses of marine resources can negatively affect biodiversity and reduce the effectiveness of conservation measures.

A major challenge is the limited participation of fishermen in decision-making and management processes. Weak communication, lack of trust and insufficient technical capacity often reduce collaboration between fishermen, MPA managers and authorities, leading to low acceptance of regulations and conflicts among stakeholders.

The solution addresses these challenges by promoting participatory approaches and strengthening fishermen engagement in MPA governance. Through dialogue, collaboration and co-management practices, it supports more inclusive decision-making, improves compliance with conservation measures and contributes to more sustainable fisheries management.

2. IMPLEMENTATION PROCESS



Participatory engagement processes and co-management approaches are closely interconnected and reinforce each other. Stakeholder engagement creates the foundation for dialogue, trust-building and communication between fishermen, MPA managers and authorities, ensuring that different perspectives and local knowledge are considered in management discussions. Building on this foundation, co-management approaches translate participation into shared decision-making and collaborative management practices.

Fishermen become actively involved in defining management measures, identifying priorities and supporting compliance with regulations. In turn, co-management strengthens participation by increasing ownership, improving transparency and demonstrating the value of collaboration.

Together, these components create a more inclusive governance system that reduces conflicts, improves acceptance of conservation measures and supports sustainable fisheries management within Marine Protected Areas.

Building Blocks

1. Participatory engagement of fishermen in MPA governance:



This building block focuses on creating participatory processes that actively involve fishermen in the governance and management of Marine Protected Areas (MPAs). It promotes dialogue and collaboration between fishermen, MPA managers and authorities to improve communication, trust and mutual understanding.

Enabling factors:

- Trust and willingness to collaborate among stakeholders
- Support from MPA authorities and managers
- Inclusive and transparent communication processes
- Skilled facilitation and mediation capacity
- Recognition of fishermen's local knowledge

Lesson learned:

Building trust requires continuous engagement and transparent communication. Early involvement of fishermen improves acceptance of management measures and reduces conflicts. Participation processes must be adapted to local contexts and stakeholder needs. One-off consultations are insufficient; long-term dialogue is essential to maintain collaboration and commitment.

2. Co-management approaches for sustainable fisheries in MPAs:



This building block promotes co-management approaches that integrate fishermen into decision-making and management processes related to fisheries within Marine Protected Areas. It supports shared responsibility between authorities and local fishing communities for the sustainable use of marine resources.

Enabling factors

- Institutional support for participatory governance
- Clear roles and responsibilities
- Long-term commitment from stakeholders
- Capacity-building for fishermen and managers
- Mechanisms for conflict resolution

Lesson learned

Co-management is more effective when stakeholders perceive tangible benefits from participation. Clear communication and realistic expectations are essential. Institutional support is critical to sustain engagement over time. Integrating local knowledge improves the legitimacy and practicality of management measures.

3. IMPACTS



The solution has strengthened collaboration between fishermen, MPA managers and authorities, improving participatory governance and co-management practices within Mediterranean MPAs.

Environmentally, increased stakeholder engagement contributes to better compliance with conservation measures, supporting the protection of marine biodiversity and the sustainable use of marine resources. Improved dialogue and cooperation help reduce conflicts related to fishing activities and resource use.

Socially, the solution enhances trust, communication and transparency among stakeholders, strengthening the inclusion of fishermen in decision-making processes and increasing acceptance of management measures. It also supports knowledge exchange between local communities and authorities.

Economically, more sustainable fisheries management contributes to the long-term viability of small-scale fisheries and the preservation of ecosystem services that support local livelihoods and coastal economies.

Overall, the solution demonstrates that participatory governance and co-management approaches improve the effectiveness and social acceptance of Marine Protected Area management.

Beneficiaries

Fishermen, MPA managers and public authorities benefit directly through improved collaboration and co-management. Indirect beneficiaries include local communities and marine ecosystems through more sustainable fisheries and biodiversity protection.



 <https://natural-heritage.interreg-euro-med.eu/>

 <https://biodiversity.uma.es/mbpctoolscatalogue/tools/fishermen-engagement-in-mediterranean-mpas/>



Challenges addressed

Loss of Biodiversity

Pollution (incl. eutrophication and litter)

Unsustainable harvesting incl. overfishing

Poor monitoring and enforcement

Lack of technical capacity



A Guide to Surveillance and Enforcement of Regulations in Mediterranean Marine Protected Areas

The Guide to Surveillance and Enforcement of Regulations in Mediterranean Marine Protected Areas (MPAs) provides practical tools and methodologies to strengthen compliance and enforcement systems. Many MPAs face challenges related to illegal activities, limited capacity and weak enforcement, reducing the effectiveness of conservation measures. The guide supports MPA managers and authorities in designing surveillance strategies, improving coordination with enforcement bodies and applying monitoring tools. It covers risk assessment, patrol planning, stakeholder engagement and the use of technologies to enhance control and compliance.

By strengthening enforcement capacity and coordination, the solution improves compliance with regulations, reduces illegal activities and contributes to more effective protection of marine ecosystems. It is a transferable tool for enhancing governance and operational management in MPAs across the Mediterranean and beyond.

1. CONTEXT



Marine Protected Areas (MPAs) often face challenges related to weak enforcement and limited compliance with regulations. Illegal activities such as overfishing and pollution continue to degrade marine ecosystems and threaten biodiversity.

A key issue is the lack of effective surveillance systems and coordination between responsible authorities. Limited technical capacity, insufficient resources and weak monitoring frameworks reduce the ability to enforce regulations consistently. These challenges are compounded by low awareness among stakeholders and limited integration of enforcement strategies into management planning.

The guide addresses these issues by providing practical tools to design surveillance systems, improve coordination with enforcement bodies and strengthen monitoring and compliance mechanisms, supporting more effective protection of marine ecosystems.

2. IMPLEMENTATION PROCESS



The design of surveillance systems and the strengthening of enforcement coordination mechanisms are closely interconnected and mutually reinforcing. Surveillance systems provide the operational foundation by identifying risks, defining patrol strategies and detecting illegal activities within Marine Protected Areas. Building on this, coordination mechanisms ensure that enforcement actions are effectively implemented by aligning roles, responsibilities and communication among authorities such as MPA managers, coast guards and environmental agencies.

This enables detected infractions to be addressed through consistent follow-up and sanctioning processes. Together, these components create an integrated enforcement system in which monitoring and response are linked. This improves compliance, reduces illegal activities and enhances the overall effectiveness of MPA management, contributing to better protection of marine ecosystems.

Building Blocks

1. Design and implementation of MPA surveillance systems:



This building block focuses on establishing effective surveillance systems to monitor activities within Marine Protected Areas (MPAs). It includes methodologies for risk assessment, patrol planning and allocation of resources to ensure efficient coverage of priority areas.

Enabling factors:

- Availability of trained staff and enforcement personnel
- Access to surveillance tools and technologies
- Coordination between MPA managers and enforcement bodies
- Clear operational protocols
- Adequate financial and institutional support

Lesson learned:

Surveillance systems must be tailored to local conditions and risks. Limited resources require prioritisation of high-impact areas. A key challenge is ensuring coordination between institutions. Combining different surveillance methods increases effectiveness. Continuous adaptation is necessary as threats evolve.

2. Strengthening compliance and enforcement coordination mechanisms:



This building block focuses on improving coordination between authorities responsible for enforcing regulations in MPAs, such as environmental agencies, coast guards and local administrations.

Enabling factors

- Institutional collaboration and clear mandates
- Legal frameworks supporting enforcement
- Communication and data-sharing systems
- Political and administrative support
- Capacity of enforcement agencies

Lesson learned

Effective enforcement depends on coordination across institutions. Fragmentation reduces impact. Clear roles and communication channels are essential. Enforcement must be integrated into broader management strategies. Capacity-building is critical to sustain results.

3. IMPACTS



The Guide to Surveillance and Enforcement has strengthened the capacity of Marine Protected Area (MPA) authorities to design and implement effective compliance systems. Environmentally, improved surveillance and enforcement contribute to reducing illegal activities such as overfishing and pollution, supporting the recovery of marine ecosystems and the protection of biodiversity.

Socially, the solution enhances coordination between authorities, including MPA managers and enforcement agencies, improving transparency, accountability and trust in management processes. It also builds technical capacity among practitioners through practical tools and methodologies.

Economically, more effective enforcement helps safeguard ecosystem services and supports sustainable economic activities such as fisheries and tourism by ensuring compliance with regulations.

Overall, the guide demonstrates that strengthening surveillance and enforcement systems is key to improving the effectiveness of MPAs, contributing to more resilient marine ecosystems and sustainable resource use.

Beneficiaries

MPA authorities, enforcement agencies and practitioners benefit directly. Indirect beneficiaries include local communities, fisheries and marine ecosystems through improved compliance, reduced illegal activities and more effective conservation outcomes.



Challenges addressed

- Floods
- Increasing temperatures
- Sea level rise
- Storm surges
- Conflicting uses / cumulative impacts
- Social conflict and civil unrest
- Pollution (incl. eutrophication and litter)
- Infrastructure development
- Lack of technical capacity
- Lack of access to long-term funding
- Lack of public and decision maker's awareness
- Ecosystem loss
- Poor monitoring and enforcement
- Poor governance and participation



MARISTANIS Wetland Contract: Contract-based governance for integrated management of coastal wetlands

The MARISTANIS Wetland Contract is an innovative governance mechanism designed to support the integrated and participatory management of coastal wetlands. It addresses the fragmentation of responsibilities and lack of coordination among stakeholders by establishing a formal agreement between public authorities, local actors and other stakeholders. The contract defines shared objectives, roles and commitments, enabling coordinated actions for wetland conservation, restoration and sustainable use. It promotes dialogue, builds trust and aligns interests across sectors, including environment, water management and local development.

By institutionalising collaboration through a contractual framework, the solution improves governance effectiveness, reduces conflicts and enhances the resilience of wetland ecosystems. It provides a replicable model for multi-level and multi-actor governance, applicable across Mediterranean and other regions facing similar challenges.

1. CONTEXT

Coastal wetlands face increasing pressures from climate change, urbanisation and competing land and water uses. Rising sea levels, storm surges and pollution contribute to ecosystem degradation and biodiversity loss. A key challenge lies in fragmented governance, with responsibilities distributed across multiple institutions and sectors, leading to weak coordination and ineffective management. Socially, limited stakeholder engagement, lack of awareness and insufficient technical capacity further constrain implementation, often resulting in conflicts between users and authorities.

Economically, competing development interests and limited access to long-term funding reduce the effectiveness of conservation actions. The MARISTANIS Wetland Contract addresses these challenges by establishing a formal agreement that aligns stakeholders, clarifies roles and enables coordinated actions, improving governance effectiveness and supporting integrated management of coastal wetlands.

2. IMPLEMENTATION PROCESS

The wetland contract and the participatory governance platform are closely interconnected and mutually reinforcing. The contract provides the formal framework, defining shared objectives, roles and commitments among stakeholders, and establishing the basis for coordinated action. Building on this foundation, the participatory platform enables stakeholders to operationalise the contract through continuous dialogue, joint decision-making and monitoring of actions.

It ensures that commitments are implemented, adapted and aligned with evolving needs and local contexts. In turn, the platform strengthens the contract by fostering trust, improving communication and facilitating conflict resolution. Together, these components create a dynamic governance system in which formal agreements and participatory processes support each other, leading to more effective, coordinated and sustainable management of coastal wetlands.

Building Blocks

1. Multi-stakeholder wetland contract as a governance instrument:



This building block introduces the wetland contract as a formal governance instrument that brings together public authorities, local stakeholders and sectoral actors under a shared agreement. The contract defines common objectives, roles, responsibilities and commitments for the sustainable management of coastal wetlands.

Enabling factors:

- Strong institutional leadership
- Legal and policy support for contractual mechanisms
- Stakeholder willingness to collaborate
- Facilitation and coordination capacity
- Clear definition of roles and commitments

Lesson learned:

Formalising collaboration through contracts increases accountability but requires strong facilitation and trust-building. Early engagement of stakeholders is critical to ensure ownership. A key challenge is aligning diverse interests; flexibility in the contract design helps accommodate local needs. Continuous coordination is necessary to maintain commitment over time.

2. Participatory governance and coordination platform:



This building block focuses on establishing a participatory platform that supports the implementation of the wetland contract. It facilitates dialogue, negotiation and coordination among stakeholders, including public authorities, local communities, NGOs and economic actors.

Enabling factors

- Inclusive stakeholder representation
- Neutral facilitation and mediation
- Transparent communication processes
- Institutional backing
- Long-term commitment of participants

Lesson learned

Sustained participation is essential; one-off consultations are not sufficient. Building trust takes time and requires consistent engagement.

Conflict management is a key function of the platform. Clear rules and transparency help maintain legitimacy and stakeholder commitment.

3. IMPACTS



The MARISTANIS Wetland Contract has demonstrated that contract-based governance significantly improves coordination and effectiveness in wetland management. Environmentally, it supports the conservation and restoration of coastal wetlands by enabling coordinated actions across sectors, contributing to reduced ecosystem degradation and enhanced biodiversity protection.

Socially, the contract strengthens collaboration between public authorities, local stakeholders and economic actors, increasing trust, transparency and participation in decision-making. It helps reduce conflicts between competing land and water uses and fosters shared ownership of management processes.

Economically, the solution improves the efficiency of resource allocation by aligning investments and actions under a common framework, supporting more strategic and long-term planning.

The approach demonstrates that formalising collaboration through contractual agreements enhances governance performance and provides a scalable model for integrated and participatory wetland management.

Beneficiaries

Public authorities, wetland managers and local stakeholders (including communities and economic actors) benefit directly. Indirect beneficiaries include ecosystems and biodiversity through improved governance, coordination and sustainable management outcomes.



 <https://natural-heritage.interreg-euro-med.eu/>

 <https://gsapskills.org/resources/maristanis-an-integrated-coastal-and-wetlands-management/>

Challenges addressed

Conflicting uses / cumulative impacts

Ecosystem loss

Lack of public and decision maker's awareness

Lack of technical capacity

Poor governance and participation



Stakeholder Participation

Toolkit for the Identification, Designation and Management of Marine Protected Areas

The Stakeholder Participation Toolkit for Marine Protected Areas (MPAs) is a practical governance tool designed to strengthen inclusive and effective stakeholder engagement in marine conservation. Developed to address gaps in participation, transparency and coordination, the toolkit provides structured methodologies and guidance for involving diverse actors in decision-making processes.

It supports MPA managers in identifying stakeholders, designing participatory processes, facilitating dialogue and integrating local knowledge into management planning. By improving collaboration between authorities, local communities, resource users and other stakeholders, the toolkit enhances governance quality and social acceptance of conservation measures. The approach contributes to more equitable and effective MPA management, reducing conflicts and supporting long-term sustainability. It is highly transferable across Mediterranean and global contexts where participatory governance is essential for achieving conservation objectives.

1. CONTEXT



Marine Protected Areas (MPAs) often face governance challenges that limit their effectiveness. Environmentally, pressures such as overfishing and cumulative impacts from multiple uses continue to degrade marine ecosystems and reduce biodiversity. Socially, weak stakeholder engagement, limited awareness and insufficient technical capacity hinder inclusive decision-making and reduce compliance with management measures. Conflicts between resource users and authorities are common, undermining conservation efforts.

Economically, limited funding and institutional capacity constrain the implementation of effective governance processes. The Stakeholder Participation Toolkit addresses these challenges by providing structured approaches to engage stakeholders, improve dialogue and strengthen participatory governance. By enhancing collaboration, it reduces conflicts, improves acceptance of management measures and supports more effective and sustainable MPA management.

2. IMPLEMENTATION PROCESS



The stakeholder mapping framework and the participatory decision-making processes are closely interconnected and mutually reinforcing. Stakeholder mapping provides the foundation by identifying relevant actors, understanding their interests and defining appropriate engagement strategies. Building on this, participatory processes enable these stakeholders to actively contribute to decision-making through structured dialogue, consultations and collaborative planning.

The information gathered during mapping ensures that participation is inclusive and representative, while participatory processes help validate and refine stakeholder analysis over time. Together, these components create a continuous cycle of engagement, dialogue and adaptation. This integrated approach strengthens trust, reduces conflicts and improves the quality and legitimacy of management decisions, ultimately leading to more effective and sustainable governance of Marine Protected Areas.

Building Blocks

1. Structured stakeholder mapping and engagement framework:



This building block provides a structured approach to identifying, analysing and engaging stakeholders in Marine Protected Area (MPA) governance. It includes tools and methodologies to map stakeholders, assess their interests and influence, and design tailored engagement strategies.

Enabling factors:

- Institutional commitment to participatory governance
- Availability of stakeholder information
- Facilitation skills and neutral coordination
- Clear communication strategies
- Support from management authorities

Lesson learned:

Effective stakeholder mapping is essential to avoid exclusion and power imbalances. Engagement processes must be adapted to local contexts and continuously updated. A key challenge is managing conflicting interests, requiring skilled facilitation and trust-building. Early and continuous involvement of stakeholders increases acceptance and long-term success.

2. Participatory decision-making and conflict resolution processes:



This building block focuses on the design and facilitation of participatory processes that enable stakeholders to contribute to decision-making in MPA management. It includes tools for organising consultations, workshops and dialogue platforms, as well as methods for integrating stakeholder input into management plans.

Enabling factors

- Skilled facilitation and mediation capacity
- Trust between stakeholders and authorities
- Institutional support for participatory processes
- Clear rules and transparency
- Continuous engagement mechanisms

Lesson learned

Participation must go beyond consultation and ensure real influence on decisions. Building trust takes time and requires consistent engagement.

Conflict resolution is a continuous process; early identification of tensions helps prevent escalation. Clear communication and transparency are critical for maintaining stakeholder commitment.

3. IMPACTS



The Stakeholder Participation Toolkit has strengthened governance processes in Marine Protected Areas by improving the quality, inclusiveness and transparency of decision-making. Socially, it has increased stakeholder engagement and trust between authorities, local communities and resource users, contributing to reduced conflicts and higher acceptance of management measures.

By enhancing participation, the toolkit supports more equitable governance and empowers local actors to contribute to conservation planning. It also strengthens institutional capacity by providing practical methodologies for stakeholder engagement and facilitation.

Environmentally, improved governance leads to more effective implementation of conservation measures, contributing to better protection of marine ecosystems and biodiversity. Increased compliance with regulations and management plans helps address pressures such as overfishing and resource conflicts.

Overall, the solution demonstrates that participatory governance is a key driver for achieving sustainable and effective MPA management across diverse contexts.

Beneficiaries

MPA managers, public authorities and local stakeholders (including fishers and communities) benefit directly. Indirect beneficiaries include marine ecosystems and biodiversity through improved governance and more effective conservation outcomes.

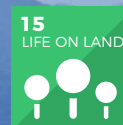


 <https://natural-heritage.interreg-euro-med.eu/>

 <https://biodiversity.uma.es/mbpctoolscatalogue/tools/>

Challenges addressed

Desertification Drought Erratic rainfall Extreme heat
Increasing temperatures Land and Forest degradation Erosion
Ecosystem loss Lack of alternative income opportunities
Changes in socio-cultural context Lack of technical capacity
Unemployment / poverty



LIFE TERRACESCAPE: Employing land stewardship to transform terraced landscapes into green infrastructures to better adapt to climate change

LIFE TERRACESCAPE is an innovative approach to restoring traditional terraced landscapes in Mediterranean regions, using them as nature-based solutions for climate adaptation. The project addresses the degradation and abandonment of terraces, which leads to soil erosion, biodiversity loss and increased vulnerability to extreme weather events. The solution combines physical restoration of dry-stone terraces with sustainable land management practices, strengthening their function as green infrastructure that regulates water flows, prevents erosion and supports biodiversity.

By integrating local knowledge, community engagement and technical expertise, the model enhances landscape resilience while supporting rural livelihoods. It demonstrates how restoring cultural landscapes can deliver environmental, social and economic benefits, and offers a replicable approach for climate adaptation across Mediterranean mountainous and island regions.

1. CONTEXT

Traditional terraced landscapes in the Mediterranean are increasingly abandoned, leading to land degradation, soil erosion and loss of biodiversity. Climate change intensifies these challenges through increased temperatures, drought and erratic rainfall, reducing the capacity of landscapes to retain water and regulate ecosystem functions. Environmentally, the collapse of terraces accelerates erosion and ecosystem degradation. Socially, the loss of traditional knowledge and reduced economic viability of rural activities contribute to land abandonment and declining local engagement.

Economically, limited income opportunities and high maintenance costs discourage the preservation of terraces. LIFE TERRACESCAPE addresses these challenges by restoring terraces as green infrastructure, enhancing water retention, reducing erosion and strengthening biodiversity, while supporting sustainable livelihoods and reactivating traditional land management practices.

2. IMPLEMENTATION PROCESS

The restoration of dry-stone terraces and the revitalisation of traditional land management practices are closely interconnected and mutually reinforcing. The physical restoration of terraces re-establishes their function as green infrastructure, improving water retention, reducing erosion and enhancing biodiversity.

At the same time, engaging local communities and reviving traditional knowledge ensures that these restored structures are maintained over time. Capacity building and local ownership are essential to sustain restoration efforts and adapt practices to current socio-economic conditions. Together, these components create a system in which ecological restoration supports sustainable livelihoods, while community engagement ensures long-term resilience. This integrated approach allows terraces to function both as cultural landscapes and as effective nature-based solutions for climate adaptation, enabling replication across Mediterranean regions.

Building Blocks

1. Restoration of dry-stone terraces as green infrastructure:



This building block focuses on the physical restoration of traditional dry-stone terraces to recover their function as green infrastructure. Restoration includes rebuilding terrace walls, stabilising slopes and reintroducing vegetation cover to improve soil structure and water retention.

Enabling factors:

- Availability of skilled labour in dry-stone construction
- Access to local materials
- Technical guidance and restoration planning
- Community engagement and ownership
- Financial support for restoration activities

Lesson learned:

Restoration is most effective when traditional knowledge is combined with technical expertise. A key challenge is the loss of skilled labour, making training essential for scaling up. Maintenance is as important as initial restoration, and long-term engagement is needed to ensure sustainability. Demonstrating the benefits for water management and soil conservation helps justify investment.

2. Revitalisation of traditional land management and local engagement:



This building block focuses on reactivating traditional land management practices and engaging local communities in the sustainable use of terraced landscapes. It includes training, capacity building and awareness-raising to recover traditional knowledge and adapt it to current socio-economic conditions.

Enabling factors

- Engagement of local communities and landowners
- Availability of training and capacity-building programmes
- Recognition of traditional knowledge
- Economic incentives or livelihood opportunities
- Institutional support

Lesson learned

Community engagement is critical for long-term success; without it, restoration efforts risk being abandoned. Reviving traditional knowledge requires both documentation and active transmission through training. Economic viability remains a challenge, so linking restoration to livelihoods is key. Building trust and demonstrating tangible benefits encourages participation.

3. IMPACTS



LIFE TERRACESCAPE has demonstrated that restoring terraced landscapes significantly improves ecosystem resilience and reduces climate risks. Rehabilitated terraces enhance water retention, reduce runoff and prevent soil erosion, contributing to the stabilisation of slopes and the recovery of degraded land.

Environmentally, restoration increases biodiversity by creating habitats and reconnecting fragmented ecosystems. Improved soil quality and vegetation cover enhance ecosystem functions and resilience to drought and extreme weather events.

Socially, the project has strengthened local capacities through training and the revitalisation of traditional knowledge, increasing community engagement in landscape management.

Economically, it contributes to sustaining rural livelihoods by supporting agricultural activities and creating opportunities linked to landscape restoration and maintenance. The solution shows that restoring cultural landscapes can generate long-term environmental and socio-economic benefits while remaining replicable across Mediterranean regions.

Beneficiaries

Local farmers, landowners & rural communities directly benefit through improved land productivity and livelihoods. Indirect beneficiaries include ecosystems, conservation practitioners & public authorities through enhanced biodiversity and climate resilience.



<https://natural-heritage.interreg-euro-med.eu/>



<https://lifeterracescape.aegean.gr/en/>

Challenges addressed

- Floods
- Increasing temperatures
- Sea level rise
- Storm surges
- Conflicting uses / cumulative impacts
- Ecosystem loss
- Lack of technical capacity
- Infrastructure development
- Lack of access to long-term funding
- Lack of public and decision maker's awareness
- Pollution (incl. eutrophication and litter)
- Poor monitoring and enforcement
- Poor governance and participation



Handbook for Coastal Wetlands Governance

The Handbook for Coastal Wetlands Governance is a practical guidance tool designed to support integrated and effective governance of coastal wetlands. These ecosystems are under increasing pressure from urbanisation, pollution and climate change, while often suffering from fragmented governance and limited coordination among institutions.

The handbook provides structured methodologies, policy guidance and practical tools to improve governance frameworks, strengthen coordination between stakeholders and support ecosystem-based management approaches. It helps decision-makers, practitioners and local authorities design more coherent and inclusive governance systems for wetlands.

By promoting integrated management and stakeholder collaboration, the solution enhances the conservation and sustainable use of coastal wetlands, improves ecosystem services and strengthens resilience to climate change. It is highly transferable across Mediterranean and other regions facing similar governance challenges.

1. CONTEXT



Coastal wetlands are under increasing pressure from climate change, urban development and competing land and water uses. Environmentally, rising sea levels, storm surges and pollution contribute to ecosystem degradation, biodiversity loss and reduced ecosystem services.

Governance challenges are central, as responsibilities are often fragmented across institutions, leading to weak coordination and ineffective management. Socially, limited awareness, insufficient technical capacity and weak stakeholder engagement further hinder sustainable management.

Economically, competing development pressures and limited access to long-term funding reduce the capacity to implement integrated management approaches.

The Handbook for Coastal Wetlands Governance addresses these challenges by providing structured guidance to improve coordination, strengthen governance frameworks and promote integrated, participatory management, enabling more effective conservation and sustainable use of coastal wetlands.

2. IMPLEMENTATION PROCESS



The integrated governance framework and stakeholder coordination mechanisms are closely interconnected and mutually reinforcing. The governance framework establishes the institutional structure, defining roles, responsibilities and coordination processes across sectors and levels.

Building on this foundation, stakeholder engagement mechanisms ensure that relevant actors are actively involved in planning and decision-making processes. These participatory approaches provide the information, local knowledge and perspectives needed to make governance frameworks operational and context-specific. In turn, stakeholder engagement helps validate and strengthen governance arrangements, improving coordination and fostering shared ownership. Together, these components create a coherent system in which institutional alignment and inclusive participation reinforce each other, enabling more effective, transparent and sustainable management of coastal wetlands.

Building Blocks

1. Integrated governance framework for coastal wetlands:



This building block provides a structured governance framework to support the integrated management of coastal wetlands. It defines roles, responsibilities and coordination mechanisms across institutions and governance levels, addressing fragmentation in decision-making.

Enabling factors:

- Strong institutional commitment
- Clear legal and policy frameworks
- Coordination mechanisms across sectors and levels
- Availability of governance data and information
- Political support for integrated approaches

Lesson learned:

Fragmented governance is a major barrier; coordination mechanisms must be clearly defined and supported. Integrating multiple sectors requires time and sustained effort. A key lesson is that governance frameworks must remain flexible to adapt to local contexts. Early involvement of institutions improves ownership and implementation.

2. Stakeholder coordination and participatory governance mechanisms:



This building block focuses on establishing mechanisms to engage stakeholders in coastal wetland governance, including public authorities, local communities, NGOs and sectoral actors. It includes tools and approaches to facilitate dialogue, support participatory planning and improve collaboration among stakeholders. By integrating diverse perspectives and knowledge, it enhances decision-making and promotes shared ownership of management processes.

Enabling factors

- Inclusive stakeholder identification and engagement
- Facilitation and mediation capacity
- Transparent communication processes
- Institutional support for participation
- Trust among stakeholders

Lesson learned

Participation must be continuous, not one-off, to be effective. Building trust is essential and takes time. Conflicts are inevitable in multi-use environments; structured dialogue helps manage them. Clear communication and defined roles improve collaboration and reduce misunderstandings.

3. IMPACTS



The Handbook for Coastal Wetlands Governance has strengthened governance capacity by providing structured approaches to improve coordination, policy coherence and stakeholder engagement in wetland management.

Environmentally, improved governance supports more effective conservation and sustainable use of coastal wetlands, contributing to reduced ecosystem degradation, enhanced biodiversity protection and the preservation of key ecosystem services such as flood regulation and water purification.

Socially, the handbook promotes inclusive decision-making by engaging local stakeholders and strengthening collaboration between institutions, increasing transparency and reducing conflicts. It also enhances technical capacity among practitioners and decision-makers.

Economically, better governance frameworks enable more efficient allocation of resources and support long-term planning, helping balance conservation and development pressures.

The solution demonstrates that integrated and participatory governance is essential for improving the resilience and sustainability of coastal wetlands across diverse contexts.

Beneficiaries

Public authorities, wetland managers and policymakers directly benefit. Indirect beneficiaries include local communities, economic sectors and ecosystems through improved governance, enhanced biodiversity protection and more sustainable management outcomes.



<https://natural-heritage.interreg-euro-med.eu/>



<https://biodiversity.uma.es/mbpctoolscatalogue/tools/handbook-for-coastal-wetlands-governance/>

Challenges addressed

- Desertification
- Drought
- Extreme heat
- Lack of technical capacity
- Ecosystem loss
- Land and Forest degradation
- Loss of Biodiversity
- Erosion
- Pollution (incl. eutrophication and litter)
- Inefficient management of financial resources
- Lack of public and decision maker's awareness
- Unemployment / poverty
- Lack of alternative income opportunities



LIFE Olivares Vivos: Biodiversity restoration and market valorisation in Mediterranean olive groves

LIFE Olivares Vivos is an innovative agri-environmental model that integrates biodiversity conservation into olive grove management in the Mediterranean. Developed under the EU LIFE programme, it addresses biodiversity loss driven by intensive agricultural practices by promoting restoration measures within productive landscapes. The solution combines habitat restoration, scientific biodiversity monitoring and a certification scheme that rewards farmers for measurable biodiversity gains. Through tailored farm advisory support, olive producers adopt practices such as vegetation cover recovery, habitat creation and reduced chemical inputs.

The model generates both environmental and economic benefits by improving ecosystem health while enhancing the market value of olive oil through biodiversity-based branding. It has demonstrated measurable increases in species richness and ecosystem functions, and offers a highly replicable approach for sustainable agriculture across Mediterranean regions.

1. CONTEXT

Mediterranean olive groves have been intensively managed, leading to biodiversity loss, soil degradation and increased vulnerability to climate change, including drought and desertification. Environmentally, simplified landscapes reduce ecosystem functions, increase erosion and weaken resilience. Socially, farmers often lack technical capacity and awareness of biodiversity-friendly practices, while economic pressures favour intensive production models. Limited incentives and market recognition reduce the adoption of sustainable practices.

Economically, olive producers face low profitability and lack alternative income opportunities, making it difficult to invest in restoration measures.

LIFE Olivares Vivos addresses these challenges by integrating biodiversity restoration into productive systems, supporting farmers with technical guidance and creating a certification scheme that rewards sustainable practices through market differentiation.

2. IMPLEMENTATION PROCESS

The biodiversity restoration practices and the certification scheme are closely interconnected and mutually reinforcing. On-farm restoration measures generate measurable improvements in biodiversity and ecosystem functions, which are monitored and validated through a scientific assessment framework.

These results form the basis for the certification scheme, translating environmental performance into market value. The certification then creates economic incentives for farmers, encouraging the adoption and long-term maintenance of biodiversity-friendly practices. Technical support and advisory services play a key role in linking both components, ensuring that restoration measures are effectively implemented and aligned with certification requirements. Together, these elements create a virtuous cycle in which ecological improvements drive economic benefits, which in turn reinforce sustainable land management and enable scaling across olive-growing regions.

Building Blocks

1. Biodiversity restoration practices in olive groves:



This building block consists of implementing biodiversity-friendly management practices within olive groves to restore ecosystem functions while maintaining agricultural production. Measures include restoring herbaceous cover, planting native vegetation, creating ecological infrastructures such as ponds and hedgerows, and reducing the use of agrochemicals.

Enabling factors:

- Availability of technical guidance and advisory services
- Farmer engagement and willingness to adopt new practices
- Demonstration farms showing tangible results
- Compatibility with existing agricultural systems
- Access to basic financial support or incentives

Lesson learned:

Restoration measures are more successful when adapted to local conditions and when farmers are actively involved in the design and implementation process. Demonstrating tangible benefits, such as improved soil quality or pest control, increases adoption. A key challenge is overcoming initial resistance due to perceived risks or costs. Continuous technical support and gradual implementation help build trust and ensure long-term uptake.

2. Biodiversity certification and market valorisation scheme:



This building block establishes a certification system that recognises and rewards farmers for measurable biodiversity improvements in their olive groves. Based on scientific monitoring, farms are evaluated and certified according to biodiversity performance, allowing producers to differentiate their products in the market.

Enabling factors

- Robust and credible biodiversity monitoring system
- Market demand for sustainable products
- Clear certification criteria and transparency
- Engagement of value chain actors (producers, distributors)
- Communication and branding strategy

Lesson learned

Linking biodiversity outcomes to market incentives is highly effective in driving behavioural change among farmers. However, credibility is essential; certification must be based on solid scientific evidence. Building consumer awareness takes time, and strong communication efforts are needed to translate ecological value into market recognition. Collaboration across the value chain is critical for scaling up the model.

3. IMPACTS



LIFE Olivares Vivos has demonstrated measurable improvements in biodiversity within olive groves, including increases in species richness of birds, plants and pollinators. Restoration measures such as vegetation cover and habitat diversification have improved soil quality, reduced erosion and enhanced ecosystem functions such as natural pest control.

Environmentally, the model contributes to reversing biodiversity loss in agricultural landscapes and increasing resilience to climate change. Socially, it strengthens farmers' knowledge and engagement with sustainable practices through technical support and capacity building.

Economically, the certification scheme creates added market value for olive oil produced under biodiversity-friendly practices, improving farm profitability and incentivising long-term adoption. The approach also enhances the reputation of agricultural products and supports rural development.

Overall, the solution demonstrates that biodiversity conservation can be successfully integrated into productive systems, delivering both ecological and economic benefits while remaining scalable across Mediterranean olive-growing regions.

Beneficiaries

LIFE Olivares Vivos has demonstrated measurable improvements in biodiversity within olive groves, including increases in species richness of birds, plants and pollinators. Restoration measures such as vegetation cover and habitat diversification have improved.



Challenges addressed

Conflicting uses / cumulative impacts

Ecosystem loss

Unsustainable harvesting incl. overfishing

Lack of alternative income opportunities

Lack of public and decision maker's awareness

Lack of technical capacity

Poor governance and participation



Monitoring Methodology for Small-Scale Fisheries within and around Marine Protected Areas (FISHMPABLUE2)

The **FISHMPABLUE2** monitoring methodology provides a harmonised framework for assessing the ecological, socio-economic and governance dimensions of small-scale fisheries operating within and around Marine Protected Areas (MPAs). Developed and tested across Mediterranean pilot sites, the methodology combines fisheries-dependent and fisheries-independent data collection, stakeholder engagement and performance indicators to evaluate the interactions between fisheries and conservation objectives.

The approach supports MPA managers, fisheries authorities and local fishing communities in generating comparable information on fishing effort, catches, socio-economic benefits and management effectiveness. By improving knowledge of small-scale fisheries and their relationship with marine ecosystems, the methodology contributes to evidence-based decision-making, adaptive management and the development of co-management arrangements that balance biodiversity conservation with sustainable livelihoods.

1. CONTEXT

Small-scale fisheries are essential for Mediterranean coastal communities, but information on their activities and interactions with Marine Protected Areas (MPAs) is often limited. Environmental challenges include biodiversity loss, cumulative pressures and overexploitation of marine resources. Social challenges relate to limited stakeholder participation and technical capacity, while economic challenges stem from dependence on fisheries and insufficient data to support sustainable livelihoods.

The FISHMPABLUE2 methodology addresses these issues through a harmonised framework for collecting ecological, socio-economic and governance data to support evidence-based fisheries and MPA management.

2. IMPLEMENTATION PROCESS

The standardised monitoring framework provides the structure for collecting comparable ecological, socio-economic and governance data across sites. Participatory data collection and stakeholder engagement ensure that fishers, managers and researchers contribute to and validate the information gathered. Together, these building blocks generate reliable evidence while strengthening trust, transparency and stakeholder ownership.

The resulting knowledge supports informed decision-making, adaptive management and the sustainable integration of small-scale fisheries within Marine Protected Areas.

Building Blocks

1. Standardised fisheries monitoring indicators and protocols:



The methodology establishes a harmonised set of ecological, socio-economic and governance indicators for monitoring small-scale fisheries within and around Marine Protected Areas (MPAs). Standardised protocols guide the collection of information on fishing effort, catches, fishing practices, socio-economic performance and stakeholder participation. This common framework enables data comparability across sites and supports evidence-based assessment of fisheries sustainability and management effectiveness.

Enabling factors:

- Availability of baseline data; engagement of fisheries authorities and MPA managers; collaboration with fishers; technical expertise for data collection and analysis; institutional commitment to long-term monitoring.

Lesson learned:

Monitoring systems must balance scientific robustness with operational feasibility. Indicators should be simple enough for routine application while providing meaningful information for management decisions. Early involvement of fishers improves data quality and stakeholder acceptance.

2. Participatory data collection and stakeholder engagement:



The methodology incorporates fishers, MPA managers, scientists and public authorities in data collection, validation and interpretation. Participatory approaches help integrate local ecological knowledge with scientific information, improve transparency and strengthen trust between stakeholders. The process supports co-management and increases the relevance of monitoring results for local decision-making.

Enabling factors

- Trust between stakeholders; effective facilitation; willingness of fishers to participate; clear communication of objectives and benefits; institutional support for participatory governance.

Lesson learned

Stakeholder engagement is most effective when participants understand how monitoring results influence management decisions. Regular feedback and transparent communication are essential to maintain participation and ownership.

3. IMPACTS



The methodology has improved the collection and comparability of fisheries data across Mediterranean MPAs, supporting evidence-based management and adaptive decision-making. By integrating ecological, socio-economic and governance indicators, it enables managers to better understand fishing activities, assess conservation outcomes and identify potential conflicts between resource use and biodiversity objectives.

The participatory approach has strengthened collaboration between fishers, researchers and MPA authorities, improving stakeholder engagement and trust. The methodology contributes to more effective fisheries management, enhanced monitoring of MPA performance and the long-term sustainability of marine resources and coastal livelihoods. Its standardised framework facilitates replication across different sites and supports regional assessments of small-scale fisheries in the Mediterranean.



Beneficiaries

MPA managers, small-scale fishers, fisheries authorities, researchers, conservation practitioners, local communities and regional organisations involved in marine conservation and sustainable fisheries management.



<http://www.parks.it/federparchi/index.php>

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Challenges addressed

Loss of Biodiversity

Lack of public and decision maker's awareness

Pollution (incl. eutrophication and litter)

Ecosystem loss

Lack of technical capacity



Monitoring Protocol for Floating & Ingested Marine Litter (MEDSEALITTER)

MEDSEALITTER provides a harmonised methodology for assessing marine litter in and around Mediterranean MPAs. Developed through the MEDSEALITTER project, the protocol enables managers, researchers and environmental authorities to systematically monitor floating litter at sea and litter ingested by marine fauna, generating comparable data across different sites and countries. The protocol addresses the growing threat of marine litter to biodiversity, ecosystem health and coastal economies, while supporting the implementation of regional and European monitoring frameworks, including the Marine Strategy Framework Directive (MSFD) and UNEP-MAP's Integrated Monitoring and Assessment Programme (IMAP). By standardising sampling methods, indicators, data collection and reporting procedures, the protocol improves knowledge of marine litter sources, distribution and impacts. It strengthens evidence-based management, facilitates transnational cooperation and supports targeted prevention and mitigation measures within Mediterranean MPAs.

1. CONTEXT

Marine litter has become a major threat to Mediterranean marine ecosystems, affecting biodiversity, ecosystem functioning and the conservation objectives of Marine Protected Areas (MPAs). Floating litter and the ingestion of plastics by marine species are difficult to quantify consistently, as monitoring approaches often differ between sites and countries. This lack of harmonised data limits the ability of managers and policymakers to assess impacts, identify sources of pollution and design effective mitigation measures.

The MEDSEALITTER protocol addresses these challenges by providing a standardised methodology for monitoring floating and ingested marine litter across Mediterranean MPAs. It strengthens technical capacity, improves the comparability of data and supports coordinated regional assessments. By generating robust evidence on marine litter distribution and impacts, the protocol enables more effective management actions, awareness raising and policy implementation at local, national and Mediterranean scales.

2. IMPLEMENTATION PROCESS

The solution combines harmonised monitoring protocols with regional data integration to generate reliable evidence for marine litter management. Standardised field methodologies ensure that data on floating litter and litter ingestion are collected consistently across different MPAs and countries. These datasets are then aggregated and analysed through common assessment frameworks, enabling comparisons across sites and the identification of regional trends and pollution hotspots.

The resulting evidence supports management decisions, policy implementation and prioritisation of prevention and mitigation measures. Together, the two building blocks create a continuous cycle in which monitoring generates knowledge, and knowledge informs adaptive management and improved conservation outcomes.

Building Blocks

1. Harmonised monitoring of floating and ingested marine litter:



This building block provides a standardised methodology for monitoring floating marine litter and litter ingested by marine fauna within Mediterranean Marine Protected Areas (MPAs). It establishes common protocols for sampling design, field surveys, indicator selection, data collection and reporting.

Enabling factors:

- Availability of trained monitoring teams.
- Access to target monitoring sites and species.
- Standardised field and laboratory procedures.
- Institutional support from MPA authorities and research organisations.
- Long-term commitment to data collection and reporting.

Lesson learned:

Harmonised monitoring greatly improves the comparability and usefulness of marine litter data across sites and countries. Simple and clearly documented methodologies facilitate uptake by MPA managers and practitioners. Capacity building is essential to ensure consistent application of protocols. Long-term monitoring programmes provide more valuable information than isolated surveys, enabling trends and emerging threats to be identified. Data quality control and coordination among participating institutions are critical for generating reliable regional assessments.

2. Regional data integration for evidence-based marine litter management:



This building block focuses on the aggregation, analysis and use of monitoring data to support management decisions and policy implementation. Information generated through the protocol is integrated into regional assessment frameworks and used to identify pollution hotspots, evaluate trends and prioritise prevention and mitigation measures.

Enabling factors

- Common reporting standards.
- Data-sharing agreements among institutions.
- Regional coordination mechanisms.
- Compatibility with existing monitoring frameworks.
- Availability of technical expertise for data analysis.

Lesson learned

Monitoring is most effective when data are actively used to inform management and policy decisions. Regional cooperation increases the value of local monitoring efforts by enabling large-scale assessments. Data-sharing mechanisms should be established from the beginning of implementation. Aligning monitoring protocols with existing policy frameworks facilitates uptake by public authorities and increases the long-term sustainability of monitoring programmes.



3. IMPACTS



The solution has improved the availability, quality and comparability of marine litter data across Mediterranean Marine Protected Areas (MPAs). By providing harmonised protocols for monitoring floating litter and litter ingestion by marine species, it has enabled managers and researchers to identify pollution hotspots, assess trends and evaluate ecological impacts more consistently.

Environmentally, the protocols have strengthened understanding of marine litter distribution and its effects on marine biodiversity, supporting evidence-based conservation measures and contributing to the implementation of the Marine Strategy Framework Directive and regional marine litter action plans. Socially, the solution has enhanced technical capacity among MPA staff, researchers and monitoring teams through the adoption of common methodologies and shared datasets. Economically, more reliable monitoring information supports the efficient allocation of resources by helping managers prioritise prevention and mitigation actions where they are most needed.

The standardised approach facilitates data sharing and transnational cooperation, creating a stronger knowledge base for regional decision-making and long-term marine litter management across Mediterranean MPAs.

Beneficiaries

Marine Protected Area managers, environmental authorities, researchers, monitoring teams, conservation organisations, policymakers and local coastal communities benefiting from healthier marine ecosystems and more effective marine litter management.



<https://natural-heritage.interreg-euro-med.eu/>



<https://www.isprambiente.gov.it/en>

Challenges addressed

Increasing temperatures

Loss of Biodiversity

Ecosystem loss

Ocean warming and acidification

Conflicting uses / cumulative impacts

Lack of technical capacity

Poor governance and participation



A Standardised and Replicable Socio-Ecological Vulnerability Assessment (MPA-ENGAGE)

Marine Protected Areas (MPAs) across the Mediterranean are increasingly exposed to climate-related pressures, including rising sea temperatures, ocean acidification and biodiversity loss. These impacts interact with existing human pressures, creating cumulative effects that threaten ecosystem integrity and the services provided by marine habitats. Despite growing awareness of climate risks, many MPA managers lack practical and standardised approaches to assess vulnerability across ecological, social and governance dimensions. Limited technical capacity, fragmented information and insufficient stakeholder involvement often hinder effective adaptation planning. The MPA-ENGAGE socio-ecological vulnerability assessment addresses these challenges by providing a replicable methodology that integrates environmental, social and governance indicators, enabling managers to identify vulnerabilities, compare results across sites and support climate-informed conservation and management decisions..

1. CONTEXT



Marine Protected Areas (MPAs) across the Mediterranean are increasingly exposed to climate-related pressures, including rising sea temperatures, ocean acidification and biodiversity loss. These impacts interact with existing human pressures, creating cumulative effects that threaten ecosystem integrity and the services provided by marine habitats. Despite growing awareness of climate risks, many MPA managers lack practical and standardised approaches to assess vulnerability across ecological, social and governance dimensions. Limited technical capacity, fragmented information and insufficient stakeholder involvement often hinder effective adaptation planning.

The MPA-ENGAGE socio-ecological vulnerability assessment addresses these challenges by providing a replicable methodology that integrates environmental, social and governance indicators, enabling managers to identify vulnerabilities, compare results across sites and support climate-informed conservation and management decisions.

2. IMPLEMENTATION PROCESS



The socio-ecological vulnerability assessment framework provides a standardised process for evaluating climate-related risks across ecological, social and governance dimensions within Marine Protected Areas. Stakeholder-informed climate risk prioritisation complements this assessment by integrating local knowledge, management experience and socio-economic considerations into the analysis.

Together, these building blocks ensure that vulnerability assessments are scientifically robust, locally relevant and applicable to management needs. The resulting evidence supports climate-informed decision-making, helps identify priority adaptation actions and strengthens the capacity of MPAs to address climate change impacts while maintaining biodiversity conservation objectives and ecosystem services.

Building Blocks

1. Integrated socio-ecological vulnerability assessment framework:



This building block provides a standardised methodology for assessing vulnerability in Marine Protected Areas (MPAs) by integrating ecological, social and governance dimensions. The framework evaluates exposure to climate-related pressures, ecosystem sensitivity and adaptive capacity, while also considering socio-economic dependencies and management effectiveness.

By combining these elements, it generates a comprehensive understanding of climate vulnerability and supports the identification of priority areas for action. The methodology is designed to be replicable across different MPAs, enabling comparisons among sites and supporting regional assessments.

Enabling factors:

- Availability of ecological and socio-economic data; technical expertise; stakeholder participation; institutional support from MPA authorities; access to climate and environmental information; commitment to evidence-based management.

Lesson learned:

Assessing vulnerability requires integrating environmental and social information rather than focusing solely on ecological indicators. Data gaps are common and should not prevent implementation; expert knowledge and stakeholder input can help fill information gaps. A standardised framework improves comparability while still allowing adaptation to local contexts.

2. Stakeholder-informed climate risk prioritisation:



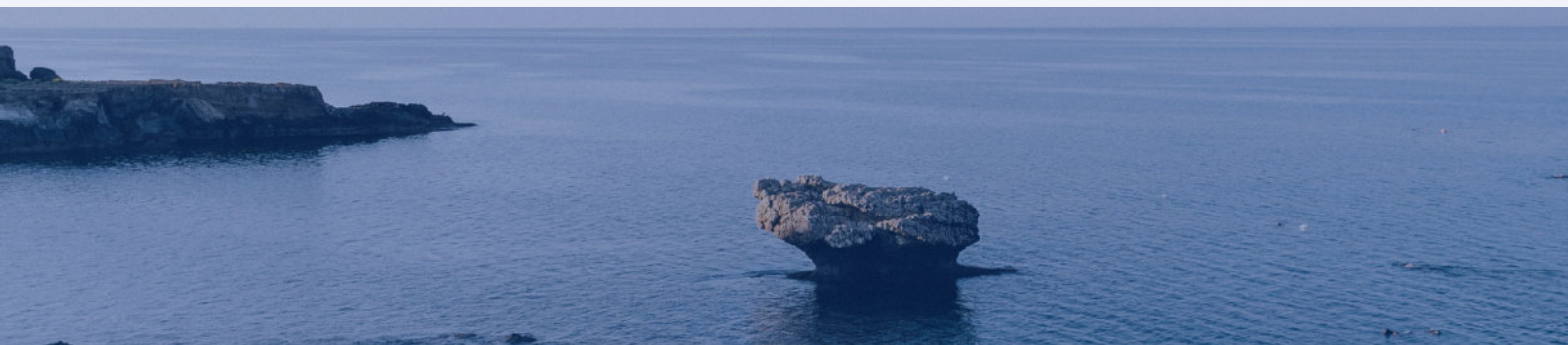
The methodology incorporates stakeholder knowledge into the vulnerability assessment process, ensuring that climate risks are evaluated from both ecological and socio-economic perspectives. Managers, researchers, local users and other stakeholders contribute to identifying vulnerabilities, validating findings and prioritising adaptation needs. This participatory approach improves the relevance of the assessment and increases acceptance of resulting management decisions.

Enabling factors

- Effective stakeholder engagement processes; transparent communication; trust between institutions and stakeholders; facilitation skills; willingness to share knowledge and experiences.

Lesson learned

Climate adaptation measures are more likely to be implemented when stakeholders participate in the assessment process. Combining scientific information with local knowledge strengthens the quality of vulnerability assessments and improves ownership of results.



3. IMPACTS



The MPA-ENGAGE socio-ecological vulnerability assessment has strengthened the capacity of Mediterranean Marine Protected Areas to understand and address climate-related risks. By providing a standardised and replicable methodology, it has enabled managers to assess ecological exposure, ecosystem sensitivity, adaptive capacity and socio-economic vulnerability using a common framework. The approach has improved the integration of climate change considerations into MPA planning and management, supporting evidence-based adaptation strategies and more effective prioritisation of conservation actions.

Socially, the methodology has fostered collaboration among scientists, managers and stakeholders, increasing awareness of climate risks and strengthening participatory decision-making. Economically, it supports more efficient allocation of limited conservation resources by identifying priority vulnerabilities and adaptation needs. The methodology has been tested across multiple Mediterranean MPAs, facilitating knowledge exchange, comparability among sites and the development of regional approaches to climate resilience.

Beneficiaries

MPA managers, conservation practitioners, researchers, public authorities, local communities, fisheries stakeholders and regional organisations involved in marine conservation, climate adaptation and protected area management.





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