Policy Brief

REST-COAST

November 2024

EU Nature Restoration Regulation and REST-COAST:

Setting the Basis for Coastal Restoration

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Policy Recommendations Summary

GOVERNANCE AND POLICY COORDINATION

Consider utilising the opportunity the EU National Restoration Plans present to align processes across policy domains and governance levels (local, regional, national, union-wide), to promote local collaboration among stakeholders, and to ensure a common understanding of priorities and clear responsibilities at each governance level.

CONNECTIVITY

Consider restoration interventions that enhance the connectivity between terrestrial, freshwater, and marine habitats and the natural dynamics between these ecosystems. This will also provide co-benefits, such as increased coastal resilience, blue carbon and socioeconomic benefits. The EU Nature Restoration Law can also promote harmonised metrics to measure biodiversity and ecosystem services for restoration measures.

INTEGRATION AND ADAPTATION

Consider developing adaptation pathways to align biodiversity restoration with climate change action (mitigation & adaptation), supporting long–term restoration efforts and preventing ecosystem deterioration. This could be done by integrating future climate scenarios and changing socio-economic conditions into the planning of coastal restoration activities and future National Restoration Plans. Research done by REST-COAST can provide valuable context-specific information to do so.

STAKEHOLDERS ENGAGEMENT

Consider leveraging existing pathways to enhance stakeholder engagement and strengthen the scientific foundation for the National Restoration Plans. Platforms such as the REST-COAST Coastal Restoration Platforms (CORE-Plats) can be used to engage stakeholders, demonstrate restoration benefits, and attract funding.

FINANCING

Consider exploring innovative financial solutions and business opportunities to sustain and advance coastal restoration efforts, such as co-financing options and long-term investment pathways. It can help to identify ecosystem services with significant economic value to find funding for coastal restoration initiatives.

1 Why this briefing?

1.1 The need for coastal restoration

Coastal regions, with about 40% of the EU's population living there, are home to some of the richest and most unique ecosystems in Europe, providing a wide range of ecosystem services and forming a vital part of our economies. Seagrass meadows, for instance, serve as nursery grounds for valuable fish and wildlife species, supporting food production, and playing a key role in maintaining water quality. Salt marshes provide natural protection for coastal communities by absorbing rainwater and reducing flooding. Both ecosystems are also effective carbon sinks that can contribute to climate change mitigation (European Commission, 2024).

Despite their importance, they are currently under unprecedented threats, with 45% percent of coastal habitats evaluated by the IUCN European Red List of Habitats currently threatened and only 8% of the EU's coastal habitats considered in good conservation status (EEA, 2020; Janssen *et al.*, 2016). This is the result of multiple pressures driven by human activities, such as overfishing, pollution, tourism, development, and climate change, which have led to an alarming decline in both biodiversity and functioning of these coastal ecosystems. Accompanied with an intricate governance and policy structure, the social-ecological system is also typically complex in EU's coastal regions, with many involved actors (Kern & Gilek, 2016).

Coastal restoration can enable these ecosystems to perform their natural functions, improving both their health and resilience. The socio-economic aspects related to governance and policies of coastal regions can also be improved. Doing so enhances the delivery of coastal ecosystem services, reduces climate risk and improves coastal adaptation to climate change (Sánchez-Arcila *et al.*, 2022). The EU Nature Restoration Regulation, which entered into force on 18 August 2024, aims to restore and recover degraded ecosystems in EU territory. As it is a regulation, it is directly applicable in all EU Member States. **This policy brief outlines key considerations on how the project REST-COAST could contribute to making the best use of this regulation for the much-needed restoration of coastal regions.**

1.2 REST-COAST project: A timely opportunity

The **REST-COAST project** aims to overcome barriers and take advantage of enablers to achieve and upscale effective coastal restoration. The project – bringing together coastal and marine ecologists, economists, engineers and policy experts – will demonstrate to what extent the upscaling and outscaling of coastal restoration can improve the health and functioning of vulnerable coastal ecosystems, guided by transformative governance and recommendations for a supportive policy framework. The project recognises the natural dynamics between coastal ecosystems and therefore embraces the vision of connectivity from rivers to coasts and the sea to ensure the effectiveness and longevity of restoration efforts. Restoring coastal regions means reducing pressures on ecosystems so they can recover, as well as understanding how to make coastal ecosystems and communities more resilient in the face of global climate change. Appropriate governance and policy frameworks that facilitate the development and implementation of those restoration actions are also needed. Currently, most coastal restoration is taking place through fragmented and small-scale local initiatives with limited impact. Effective restoration action will require a broader scope, timely action and stronger local support, including adequate monitoring and maintenance, funding and long-term commitments (Sanchez-Arcilla *et al.*, 2022).

Based on the project results, REST-COAST provides tools to overcome current technical, financial, governance and social limitations to widespread coastal restoration. Representing vulnerability hotspots for the main EU regional seas (Baltic, Black, Northeast Atlantic and the Mediterranean), the project's **nine Pilot Site**s (Figure 1) the project's nine Pilot Sites demonstrate how to effectively scale up coastal restoration, from coastal wetlands and seagrass meadows to coastal lagoons. In addition, the Coastal Restoration Platforms (called "CORE-PLAT") from REST-COAST are a place to bring stakeholders together (public administrations, private sectors, scientists and NGOs) to overcome barriers and promote synergies for effective local restoration action. The EU Nature Restoration Regulation provides a unique and timely opportunity to develop a tailor-made framework for current and future restoration actions.

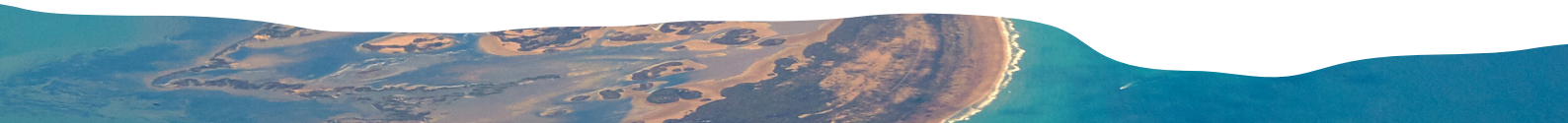

Figure 1. *Location of REST COAST Pilot Sites*

2 Where are we now: The policy context

2.1 International and EU policy context

The need for widespread restoration was recently recognised by the United Nations (UN), who declared 2021-2030 as the '**Decade of Ecosystem Restoration**' (UN, n.d.). Ecosystem restoration is also part of the Kunming-Montreal Global Biodiversity Framework, which sets a target of restoring 30% of degraded ecosystems by 2030 (CBD, 2022). At regional level, various Regional Seas Conventions continue to provide intergovernmental frameworks to address the degradation of the oceans and seas, including those covering EU regions including the **Barcelona**, **HELCOM**, **OSPAR**, and the **Black Sea Conventions**.[1] In addition, the **Ramsar Convention** provides an intergovernmental treaty for the conservation and sustainable use of wetlands.

The EU relies on a variety of regulatory frameworks, strategies and action plans that are already in place to protect and preserve its coasts and seas. However, restoration has not been the exclusive objective of these efforts. In addition to the **Birds** and **Habitats Directives** (BHD), which provide the framework for the protection of habitats and species under the Natura 2000 network, directives such as the **Marine Strategy Framework Directive** (MSFD), the **Water Framework Directive** (WFD), and the **Marine Spatial Planning Directive** (MSP) are aiming to improve the state of EU marine and water related ecosystems. Beyond that, further restoration action is promoted by the current **EU Mission 'Restore our Ocean and Waters'**. The **Integrated Maritime Policy** (IMP) provides an overarching policy framework for all coastal and marine areas in the EU. Unfortunately, recent assessments have shown that the EU is far from meeting the targets set by the BHD, MSFD and WFD, with most habitats remaining in unfavourable conservation status, suggesting that additional legislation is needed to encourage action to restore our coastal ecosystems, in addition to protecting them (Maes *et al.*, 2020).

In 2020, the EU published its **EU Biodiversity Strategy to 2030**, which serves as a key pillar of the EU Green Deal Initiative. This strategy aims to put Europe's biodiversity on the path to recovery by 2030 and fulfil its vision of 'Living in harmony with nature' by 2050. Key commitments of this strategy are the protection of 30% of the EU's land and seas and a proposal for legally binding EU nature restoration targets to restore degraded ecosystems across the EU. The EU Nature Restoration Regulation, forming the legal basis for nature restoration, was adopted to move forward with this second commitment (European Commission, 2020). The EU Biodiversity Strategy also emphasises the need to restore marine ecosystems, including carbon-rich ecosystems and those areas important for fish spawning and nursery.

[1] These conventions are each responsible for different marine regions; the Barcelona Convention for the protection of the Mediterranean Sea, the Helsinki Convention (HELCOM) for the Baltic Sea and the Oslo-Paris Convention (OSPAR) for the North-East Atlantic Sea.

2.2 The EU Nature Restoration Regulation

The EU Nature Restoration Regulation (also known as Nature Restoration Law, NRL) is the first comprehensive legal framework for restoring degraded ecosystems across the EU, and also a pioneer on the global stage. This regulation, for the first time in Europe, sets legally binding restoration targets for Member States, together amounting for **the restoration of 20% of the EU's land and marine areas by 2030**, and the restoration of all degraded ecosystems by 2050 (Art. 1). The ecosystems with the most potential to capture and store carbon, and those that can help prevent and reduce the impact of natural disasters are prioritised. This implies that carbon rich marine and coastal ecosystems, such as wetlands, mangroves,[2] seagrass meadows and salt marshes, among others, should be prioritised on national restoration agendas (Lecerf *et al.*, 2023).

This new regulation provides a comprehensive approach for nature restoration action. Building on existing EU environmental policies and actively seeking synergies with EU climate policies, the NRL will strengthen the implementation and enforcement for ecosystem restoration throughout the EU territory. Its approach is to focus first on the habitats and species covered by the EU Nature Directives (Birds and Habitats Directives), adding time-bound commitments and specific requirements to restore ecosystems, also extending outside of the Natura 2000 network. For ecosystems that currently lack data and monitoring systems, including agricultural land and forests, Member States are required to improve on specified biodiversity indicators until accurate monitoring systems are set in place.

Relevant for coastal regions, the regulation will add specific targets and improve monitoring for marine habitats and species covered by the MSFD. The regulation also promotes synergies with the WFD (including addressing diffused pollution from surrounding habitats and removing barriers to enhance natural connectivity of rivers and lakes). The NRL also refers to the Common Fisheries Policy (CFP), to ensure that the degradation of marine ecosystem due to aquaculture and fisheries activities is avoided. While not explicitly referred to in the NRL, MSP will be a key tool for ensuring the restoration of coastal, marine and freshwater ecosystems follows an integrated approach that considers land-sea interactions, as well as wider demands on maritime space and the coordination of activities with neighbouring Member States.

In addition to the regulation's general provisions (Chapter 1), the NRL details the restoration targets and obligations for several ecosystems (Chapter 2) and the requirements for the national restoration plans (Chapter 3), which together form the key components of the regulation. The last three chapters describe monitoring and reporting under the NRL, delegated and implementing acts, and the regulation's final provisions, while the annexes provide the habitat types and species to which the NRL applies, agricultural and forest ecosystem indicators, common farmland bird index, and examples of restoration measures.

3. NRL's potential for Coastal Restoration

3.1 Key targets and provisions for coastal regions

Key targets for the restoration in coastal regions are provided in Article 4 on 'terrestrial, coastal and freshwater ecosystems' and Article 5 on 'marine ecosystems' of the NRL. The relevant habitat types and groups of habitat types for terrestrial, coastal, and freshwater ecosystems are listed in Annex I and for marine ecosystems in Annex II, while specific marine species are listed in Annex III. Under these two articles, Member States are required to put in place **restoration measures to improve at least 30% of listed habitat types and groups of habitat types to good condition by 2030** (60% by 2040, and 90% by 2050). In addition, Member States are required to re-established habitat types in additional areas to reach at least 30% of their favourable reference area by 2030 (60% by 2040, and 100% by 2050). Furthermore, they are required to continuously improve the quality and quantity of the habitats of species listed under the Nature Directives, including their re-establishment, consideration of their connectivity and avoiding significant degradation.[3]

[2] Europe does not have natural mangrove forests like those found in tropical regions. However, they are mentioned here due to their occurrence in several EU overseas regions and territories located in tropical and subtropical areas, such as those associated with France and the Netherlands.
[3] This obligation refers to the habitat of species listed in Annexes II, IV and V of the Habitat Directives, and habitats of wild birds falling within the scope of the Birds Directive.

In addition, the text establishes that Member States shall identify and remove barriers to surface water connectivity (Art. 9), thereby contributing to the objectives of Article 4 and the EU Biodiversity Strategy **target of restoring more than 25,000 km of rivers to free-flowing status by 2030**. The NRL also requires Member States to **restore and partly rewet drained peatlands in agricultural areas, namely 30% by 2030** (of which at least a quarter rewetted), 40% by 2040 (a third rewetted) and 50% by 2050 (a third rewetted), with flexibility clauses that allow to count restoration and rewetting in areas of peat extraction and other land uses (Art. 11). Other targets, obligations and topics that are covered by the NRL are renewable energy sources (Art. 6), national defence (Art. 7), urban ecosystems (Art. 8), pollinators (Art. 10), forests (Art. 12), and to commitment to plant at least three billion trees by 2030 (Art. 13).

3.2 National Restoration Plans

The **National Restoration Plans (NRPs)** will be the cornerstone planning tools for implementing the NRL at national level. The document on the NRL dedicates a full chapter to elaborate on their preparation, content, submission, assessment, and periodic review. According to this text, **Member States shall submit their National Restoration Plans 24 months after the regulation enters into force, thus expected by August 2026** (Art. 16 and 17), and to review them every 10 years. In these NRPs, Member States will set out how they intend to deliver on the targets, and how they will monitor and report on their progress. Therefore, the ongoing work developed under REST-COAST projected to conclude in early 2026, presents a timely opportunity to contribute to this process.

Under the NRPs, Member States are required to develop a unified restoration plan. This holistic approach presents an excellent opportunity to harmonise restoration efforts and align them with existing policies that impact nature restoration. In coastal regions, ecosystem functions and services highly depend on land-sea interactions, hence coastal restoration efforts must consider how processes and drivers at land and sea impact each other. Well-connected terrestrial, freshwater and marine areas are furthermore crucial for the longevity of migratory species, including migratory fish, amphibians and butterflies (Hilty *et al.*, 2020). **When drafting the NRPs, it will thus be essential to consider the connectivity between freshwater, coastal, and marine ecosystems to maximise restoration outcomes**. For this reason, the preamble to the regulation encourages Member States to include restoration measures for specific habitats of marine species covered by the Convention on the Conservation of Migratory Species of Wild Animals, or those listed as endangered or threatened under the relevant Regional Sea Conventions in their NRPs.

In addition to the relevance of the EU Nature Directives to the NRL, Member States are encouraged to identify and integrate synergies with other EU legislation and environmental objectives. For instance, marine and coastal ecosystems, as blue carbon ecosystems, can play a critical role for climate change mitigation and adaptation. Furthermore, Member States could consider synergies with, *inter alia*, the MSFD and the WFD, the European Climate law, the Blue Economy Strategy and the Climate Adaptation Strategy in relation to coastal restoration. Additionally, Member States will need to outline how they will allocate financial resources to fulfil the NRPs.

Member States are also required to monitor and report on the progress made towards the targets, which will contribute to improved monitoring systems and assessments of the different habitat types, and a better understanding of the current state of the different ecosystems. The NRL requires Member States **to know the condition of 50% of the marine habitat types included in the NRL by 2040**, and all by 2050 (Art. 5). Member States are also encouraged to use additional information about pressures and threats for the assessment of the condition of marine habitats listed under the NRL and the planning of restoration measures for these habitat types in the preamble to the regulation, given the technical and financial challenges to map and monitor marine environments. The European Commission in turn may propose additional restoration targets or propose amendments to the annexes based on technical and scientific progress (incl. adapting the list of species and examples of restoration measures).

Member States are also required to include the estimated co-benefits for climate mitigation and socio-economic impacts of the restoration efforts in their plans. This will enhance the understanding of the potential of different ecosystems for climate mitigation and highlighting the benefits restoration measures can provide for local communities, especially in coastal regions.

To scale up restoration measures, Member States will also need to improve coordination and cooperation at regional, national and local levels. In marine environments, **Member States are required to submit joint recommendations if their restoration activities are expected to conflict with fishing activities of another Member State** (Art. 18). Joint recommendations are already a voluntary procedure under the Common Fisheries Policy (Art. 11), which will now be made compulsory and include a timeframe, based on the targets set out in Article 5. The Commission is to facilitate and oversee this process, which is a crucial step as commercial fishing is the main threat to marine biodiversity (WWF, 2020). Essential for the regulation's implementation, **Member States are also required to use participatory approaches and provide early opportunities for the public and relevant stakeholders to engage with the planning and implementation process of the NRPs**.

4. Paving the way for a robust NRL implementation: Recommendations for coastal restoration

To achieve the NRL's objectives, there is a need for methods to accelerate and increase the scale and impact of restoration action, particularly in coastal and marine ecosystems. Over the next two years, Member States will have to draw up their National Restoration Plans and plan how they will deliver on the restoration targets. REST-COAST offers valuable input to Member States for these NRPs, providing expertise, tools and best practices from several locations across the EU and beyond on coastal ecosystem restoration, which are key ecosystems for climate change mitigation and adaptation. The project particularly contributes by focussing on addressing technical, financial, governance and social limitations to upscaling and outscaling of coastal restoration. Bearing in mind REST-COAST outcomes from Pilot Sites and ongoing work, during the drafting of the NRPs, as well as the further implementation, monitoring and reporting under the NRL, Member States could take the following considerations in mind:

GOVERNANCE AND POLICY COORDINATION

Consider utilising this opportunity to align processes across policy domains and governance levels (local, regional, national, union-wide) and promote local collaboration among stakeholders. Effective coordination between all government levels and constructive stakeholder engagement will be crucial for the co-creation of restoration actions and a successful implementation of the NRL. REST-COAST is outlining clear responsibilities for each governance level and contributing to a good understanding of the policy landscape to enhance clarity and coordination of restoration efforts on the ground. Additional insights from REST-COAST can help achieve a common understanding of priorities and ensure that decisions are taken at the appropriate scale, promoting effective and collaborative restoration initiatives that together will support Member States to reach the targets of the NRL.

- **Wadden Sea** Pilot Site is improving the integration of restoration activities into existing policy frameworks such as the Eems-Dollard 2050 programme and Natura 2000 maintenance plans, in line with the governance transformation actions identified through REST-COAST. This improvement could be addressed by ensuring that future Dutch, Danish and German National Restoration Plans are developed through an effective participatory process involving key stakeholders from all relevant policy domains and levels.
- The REST-COAST project is actively engaging at different levels with international organizations such as BSEC (Black Sea Economic Cooperation) and UNEP/MAP (Barcelona Convention), as well as relevant Green Deal initiatives, across multiple levels. Through participation in key events (workshops, conferences, meetings, ...) the project aims to effectively communicate targeted messages on coastal restoration, highlighting its outcomes and impact.

CONNECTIVITY

Consider restoration interventions that enhance connectivity between different habitat types and ecosystems, while accounting for land-sea interactions. Functional connectivity of terrestrial, freshwater and marine habitats is essential for healthy and well-functioning coastal ecosystems. Focussing on connectivity and natural dynamics will not only enhance biodiversity, but also improve coastal resilience, boost blue carbon and provide shared socioeconomic benefits for local stakeholders.

- **Ebro Delta** Pilot Site is improving hydrological connectivity from the back-shore to the front-shore and along the coastline through a range of restoration actions. Moreover, by modelling upstream sediment fluxes, the Pilot is demonstrating the potential benefits of enhancing river-coast-sea connectivity at the basin level. **Nahal Dalia** and **Foros Bay** Pilot Sites are also improving eco-hydrological connectivity between lakes, streams and the sea. Through recovering natural ecosystem dynamics, all these actions are expected to enhance ecosystem services, including fisheries and coastal protection, while delivering biodiversity gains.
- **Rhone Delta** Pilot Site is investigating how re-establishing natural water flows between rivers, wetlands, and coastal areas, can improve water quality, support fish migration, and enhance climate change resilience.

INTEGRATION AND ADAPTATION

Consider integrating a broad range of goals, including climate resilience, into the planning of coastal restoration activities and future National Restoration Plans to promote adaptability to various climate scenarios and evolving socio-economic conditions. Restoration decisions – concerning what, where and how to restore - require careful consideration of diverse biophysical and sociopolitical factors to optimise benefits for both nature and society. Crucially, restoring biodiversity should be aligned with climate change mitigation and adaptation to enhance the future resilience of coastal ecosystems. The development of methods, approaches and tools can support climate-smart restoration decision-making by enabling the comparison of different restoration options based on their expected outcomes under different climate change scenarios. These tools, should combine scientific evidence with stakeholder input to help identify, assess and sequence measures using interdisciplinary metrics. Member States can leverage outcomes from REST-COAST to further promote harmonised data and indicators to measure ecosystem services delivery alongside biodiversity improvements of coastal restoration, allowing for the selection of the most appropriate restoration measures to meet multiple policy goals.

- REST-COAST is designing the **Quick Scan Strategies Tool**, a digital GIS-based platform aimed at supporting the creation of coastal restoration strategies. This tool will enable decision makers to address the challenges of climate change by exploring different adaptation pathways through restoration. This can facilitate the preparation and development of long-term, flexible strategies across multiple spatial scales ensuring adaptive approaches.
- REST-COAST has also developed a **scorecard methodology** for Pilots based on EUNIS habitat classification and IUCN Red list habitat status to assess changes in key ecosystem services and biodiversity resulting from restoration measures.

- **Arcachon Bay** Pilot Site is currently testing an approach combining socio-economic analysis and eco-morphodynamic modelling to help assess the benefits of improving ecosystem services, including climate risk reduction, of different seagrass restoration approaches under diverse climate change scenarios.
- **Sicily Lagoon** Pilot Site has worked with numerical modelling to evaluate the effectiveness of the dune revegetation. By simulating the hydraulic and sediment transport processes, results showed that the extended vegetated dune strip plays a crucial role in reducing coastal flooding risk during extreme wave events. This, in turn, enhances the coastal protection of the adjacent city areas.
- The **Foros Bay** Pilot Site is evaluating the effectiveness of restoring seagrass meadows in mitigating coastal erosion using modelling techniques which simulate various climate change scenarios.

STAKEHOLDERS ENGAGEMENT

Consider leveraging existing pathways to enhance stakeholder engagement and strengthen the scientific foundation for the National Restoration Plans. Platforms that gather extensive data and offer new tools to relevant stakeholders - including scientists, managers, policy makers, conservationists, civil society and investors – can play a crucial role in fostering collaboration and engagement across all levels (local, national, international). The Coastal Restoration Platforms (CORE-PLATs), as co-design living labs, present a valuable and timely opportunity to demonstrate the benefits of restoration to coastal stakeholders, while also engaging civil society and attracting funding that can be useful for the development and implementation of the National Restoration Plans.

- In the **Venice Lagoon** and **Ebro Delta** Pilot Sites, the CORE-PLATs and meetings with other relevant institutions have helped strengthen dialogue, consensus building and knowledge sharing amongst stakeholders. Through promoting collaborative discussions amongst diverse stakeholders, the CORE-PLATs have contributed towards breaking down silos in coastal restoration and capitalising on synergies across scientific, institutional and local actors.
- The **Nahal Dalia** Pilot Site is also exploring how to strengthen its governance structure using the CORE-PLAT to formalise the long-term stakeholder partnerships needed to support restoration projects in the region.

FINANCING

Consider exploring innovative financial solutions and business opportunities to sustain and advance coastal restoration efforts. Member States are required to describe the financial pathways they intend to use to finance the implementation of their restoration plans. REST-COAST is exploring how innovative financial arrangements and bankable business plans can support long-term coastal restoration, supplementing the prevailing financial models based on funding from public and philanthropic sources. The project offers in-depth assessments of financial barriers and opportunities in specific restoration projects, providing illustrations on how to upscale coastal restoration efforts. For instance, identifying ecosystem services that have significant economic value and can help to finance coastal restoration, as well as the identification of co-financing options and long-term investments pathways. This includes potential nature-based solution business models based on eco-tourism, carbon offsetting and the reduction of costs related to flood risk reduction or sediment management.

- The **Rhone Delta** Pilot Site presents an opportunity to use its carbon sequestration quantification methodology to explore using carbon credits as an instrument to fund future activities.
- The **Nahal Dalia** Pilot Site is exploring the feasibility of additional public and private funding sources based on the improvements of ecosystem services triggering different benefits (e.g. cost saving for reduced flood damages to infrastructures; increasing both fish and crop yield due to better water quality respectively for aquaculture and agriculture uses; improved biodiversity, stimulating eco-tourism and educational activities).
- The **Venice Lagoon** Pilot Site is exploring the potential of reusing dredged sediments for restoration activities, which would bring savings for the public authorities by reducing costs associated with sediment transport. In addition to being cost-effective, refilling eroded saltmarsh areas with locally sourced sediments would enhance the resilience of the lagoon's ecosystem and reduce the carbon footprint of restoration activities. Moreover, the research team in the Pilot explored the possibility to co-develop a business plan for upscaling restoration by engaging multiple stakeholders from the CORE-PLAT. Such an effort has led to a recent scientific publication (Pernice *et al.*, 2024) facilitating a shared vision of the process for gathering financial support for restoration in the area.

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