REST-COAST

PILOT SITE GOVERNANCE BRIEFS

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With collaboration from pilot site teams

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Funded by the European Union

HOW TO READ GOVERNANCE BRIEFS?

Every pilot brief is divided into three different sections, each addressing an essential part of the governance assessment conducted under WP5. This document is part of RESCOAST project Deliverable 4.4 "Scalable plan for adaptation-through restoration to close the implementation gap".

Section 1 "Pilot-wide governance framework: State of play and analysis of roadmapped actions" includes a multi-level governance diagram to provide an overview of actors involved throughout the restoration process, and also analyses progress towards transformative governance using the performance of governance criteria in the context of each Pilot. The baseline for this assessment was the self-assessment *status quo* review carried out in 2022 (D5.1), as well as the actions included in REST-COAST governance Roadmaps and Recommendations (D5.2 and 5.3) developed in 2023, later assessed in 2024. A comparison of the results from both assessments is presented in a table where performance rates were reassessed using governance metrics as indicated in Milestone 5.3 (positive variation values reflect improvement, whereas negative values indicate worsening). This is also accompanied by a radar chart (Figure 1) that illustrates the progress for each governance criterion by Pilot Site. In addition, progress on roadmap implementation is visualized using a vertical stacked bar chart (Figure 2). Similarly to the graphics below, which summarize results at the REST-COAST project level, showing a modest overall improvement following the implementation of WP5 governance recommendations.

Following the analysis of the progress and current status of the governance framework for each Pilot Site, two additional sections have been developed: Section 2 on "**Recommendations for Strengthening Progress on Roadmapped Actions**" and Section 3 on **Analysis of Governance actions at Adaptation Measure level**". Both present a comprehensive governance-level analysis across the nine REST-COAST Pilot Sites. These sections serve to categorise and prioritise governance actions and identify challenges in the implementation of nature-based restoration, linked to enablers and barriers in associated Pilots, either at a project level (Section 2) or adaptation measure level (Section 3). To ensure proper tracking, actions are numbered consistently with the governance roadmaps. The full set of actions and further details can be consulted in Deliverable 5.2.

Section 2 specifically draws from the sites' strategic roadmaps developed under WP5. It also offers tailored recommendations to enhance the operationalisation of governance actions—especially those that remain stalled or have limited traction—through improved legal frameworks, funding strategies, accountability mechanisms, and stakeholder coordination.

Figure 1. Progress on governance criteria

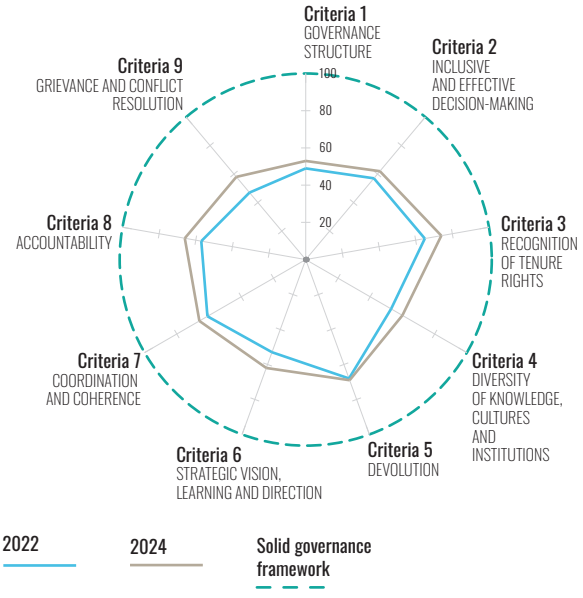
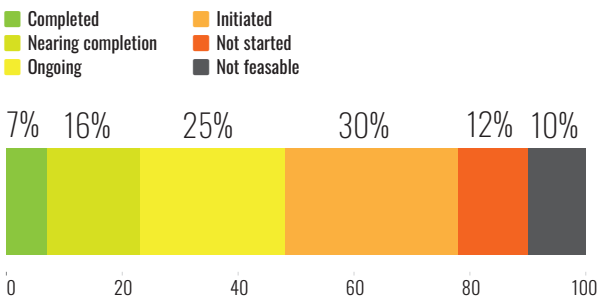


Figure 2. Status of governance roadmaps implementation at REST-COAST level

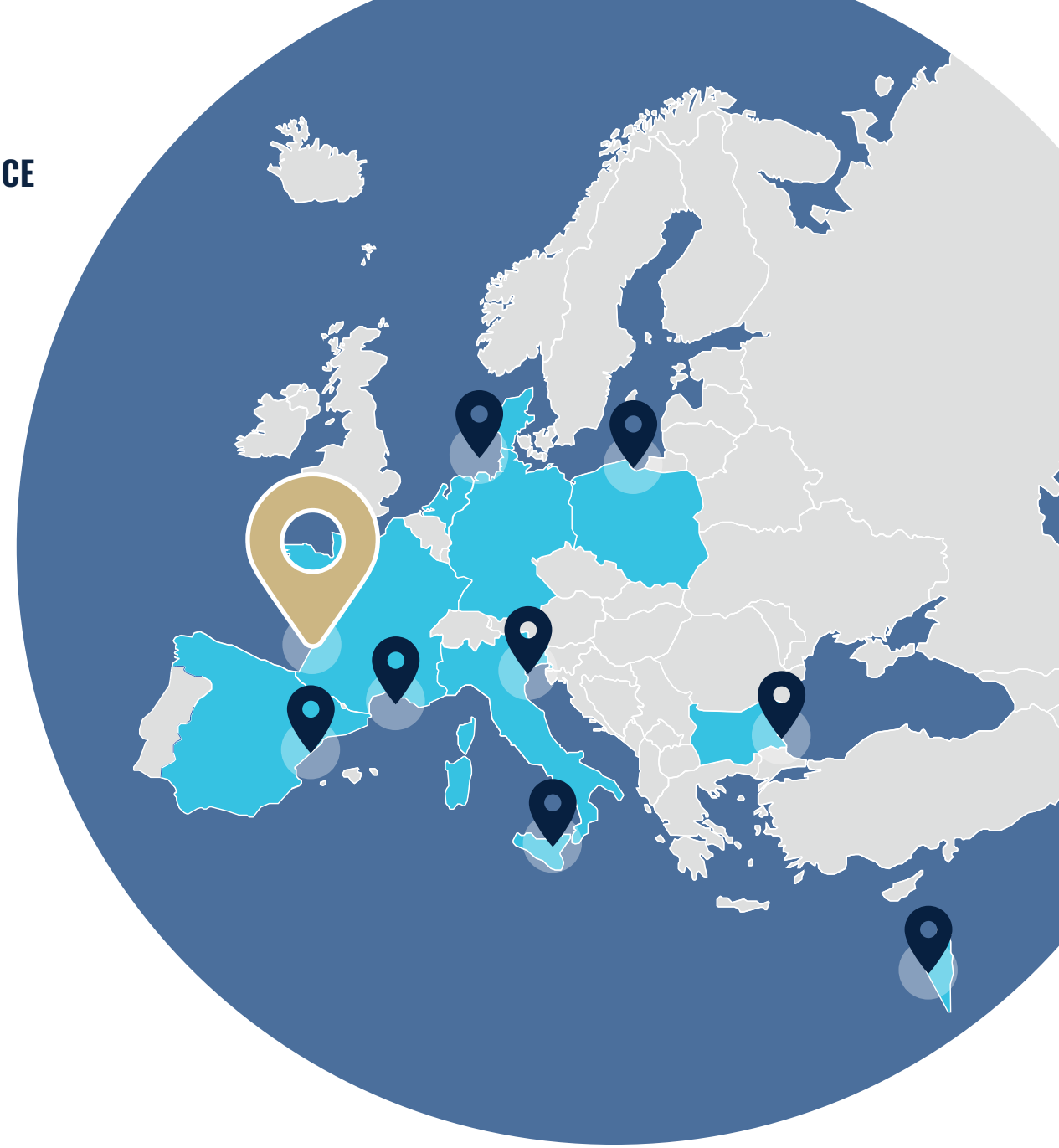


While the WP5 Strategic Governance Roadmaps proposed governance actions and recommendations at a project-wide scale, **Section 3** provides a refined analysis that situates each action within the operational context of the adaptation measures under implementation. This analysis enables a clearer alignment between governance interventions and the practical requirements of implementation, offering a more targeted understanding of how governance enablers and barriers manifest across specific adaptation priorities. Thus, this section offers an implementation-focused view of the recommended governance actions by linking them directly to the specific adaptation measures under WP4, following the Adaptation Measure Categories as defined in this deliverable (D4.4). These include:

- **Measure Category 1. (Coastal) Wetland Restoration** – covering saltmarshes, seagrass meadows, the coastal fringe areas and related soft habitats.
- **Measure Category 2. Sediment Management** – addressing dynamic sediment transport and nourishment.
- **Measure Category 3. Restoring Hydraulic Connectivity** – including channel opening, flow regulation, and reconnection of aquatic systems.
- **Measure Category 4. Artificial Habitat Creation** – such as engineered islands, or artificial structures enhancing biodiversity.
- **Measure Category 5. Climate-Resilient Food Production** – focused on sustainable practices compatible with ecosystem restoration goals.
- **Measure Category 6. Flood Protection** – particularly the integration of nature-based solutions into risk management strategies.

By analysing governance actions at adaptation categories level for each Pilot, this section improves the traceability of roadmapped actions linked to specific barriers and enablers and strengthens the connection between strategic governance interventions and concrete ecosystem restoration measures and their potential outcomes. Together, these two sections support a more adaptive, integrated, and targeted pathway for governance transformation and restoration upscaling across coastal landscapes. At the end of this analysis, under "*Remaining governance actions*", are gathered all actions that did not fall under any specific Adaptation Measure Category listed above. It encompasses measures that establish an enabling environment to strengthen the overall governance system at a Pilot level—an essential foundation for effective adaptation and restoration at each Site. Rather than focusing on specific adaptation measures, these actions target structural governance conditions—such as inter-agency coordination, legal clarity, stakeholder representation, and accountability—which critically influence the viability and scalability of all ecological interventions. As such, they go beyond the individual adaptive measures identified by WP4. Given the diverse contexts of each Pilot, the section presents a broad range of governance actions aimed at ensuring the effective implementation and long-term sustainability of nature-based solutions across the Pilots.

PILOT SITE GOVERNANCE BRIEFS



REST-COAST

1. ARCACHON BAY

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1. ARCACHON BAY

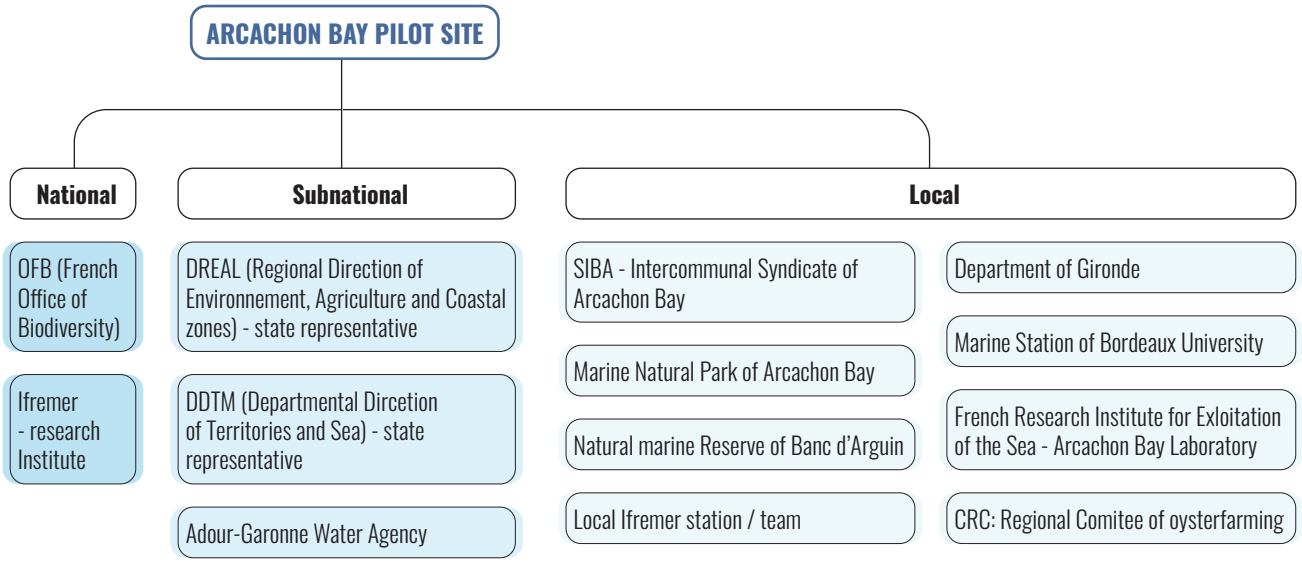
Arcachon Bay Pilot Site encompasses a diverse array of actors, including local NGOs, oyster farmers, scientific institutions, and area managers. All of them play crucial roles in the Site's coastal restoration efforts, each bringing unique perspectives and priorities. Notably, their interests vary widely from conservation to economic activities, presenting challenges in forging a unified vision for restoration (Figure 1,1).

1.1 Pilot-wide governance framework: State of play and analysis of roadmapped actions

The progress of roadmap implementation in the Arcachon Bay Pilot Site highlights the structural and institutional constraints that limit the site's governance transformation potential. Arcachon Bay has been assigned a total of **14 governance road-mapped strategic actions**, of which approximately 50% are either initiated, ongoing, or nearing completion. This reflects an initial positive traction on selected governance priorities, particularly those related to technical demonstrations, dissemination efforts, and stakeholder dialogue. However, more systemic institutional engagement remains limited, especially regarding formal governance integration, funding mechanisms, and policy alignment.

Regarding **governance criteria performance**, Arcachon Bay has experienced a slight average decline, with the overall average governance score decreasing from 67% in 2022 to 61% in 2024. As illustrated in Table 1 and Figure 4, the most significant regressions were recorded in "*Coordination and Coherence*" (-27%), "*Accountability*" (-20%), and "*Devolution*" (-15%), suggesting an erosion of inter-institutional collaboration and the capacity for shared governance across vertical and horizontal levels. "*Grievance and Conflict Resolution*" also declined (-10%), pointing to persistent issues with stakeholder engagement and unresolved tensions, especially with oyster farmers and other marine users. In the field, this is reflected in the refocusing of governance bodies on regional issues, such as the complexity of managing shellfish farming in a highly touristy, urbanized context exposed to climate change. In this respect, the Pilot leader is now in direct contact only with the Marine Protected Area (MPA) manager, who relays REST-COAST conclusions and proposals, but interaction with other local governance stakeholders remains limited.

Figure 1.1. Stakeholder map for the Arcachon Bay Pilot Site



In contrast, modest improvements were noted in "*Diversity of Knowledge, Cultures, and Institutions*" (+10%), "*Strategic Vision, Learning and Direction*" (+7%), and "*Recognition of Tenure Rights*" (+5%), indicating some success in fostering awareness of restoration benefits, promoting cross-sectoral knowledge sharing, and recognising stakeholder roles. These gains are linked to the technical and scientific outputs of the REST-COAST project, including seagrass restoration and ecosystem services modelling.

Nevertheless, these improvements have not yet translated into durable governance shifts, as project partners leading this Pilot Site remain external to formal governance structures. Also, these results support new opportunities, such as 3 initiatives in early 2025 to enhance seagrass restoration, relying on REST-COAST results. This demonstrates the relevance of the project for the upscaling of restoration and the capacity of local governance to consider these results and to onboard all stakeholders to benefit from new opportunities in that field.

Upon reviewing the implementation roadmap (Figure 1.3), the most significant progress has occurred in areas under direct control of the Pilot team, such as stakeholder communication (Actions 11i–iii), knowledge-sharing on restoration scenarios (Actions 7ii and 14), and contribution to strategic visioning through ESS modelling. However, actions that require formal integration into governance processes or institutional reform (e.g., Actions 1, 7i, 7iii, 9, 10i–ii, and 13) are either "Not Started" or "Not Feasible," largely due to the project's limited mandate to directly influence local decision-making or legislative frameworks. Despite this, the project has played a valuable role as a scientific and technical contributor, offering evidence-based inputs to support future governance alignment. A main achievement is the replication of transplantation and seedlings operations by the MPA manager as well as the request of new funding from several possible sources to increase the understanding of the hydro-bio interaction, which was demonstrated in REST-COAST, and to settle new model/tools to target the "quick wins" sites for ecological restoration after REST-COAST results. Progress in stakeholder engagement will rely on building consensus around shared ecosystem benefits and strengthening trust between scientific actors and local governance bodies.

Table 1.1. Results from governance self-assessment at Arcachon Bay Pilot Site by criteria in 2022 and 2024.

GOVERNANCE CRITERIA	Performance Rates		Variation from 2022 to 2024
	2024	2022	
1. Governance Structure and Legal Alignment	50%	50%	0%
2. Inclusive and Effective Decision-Making	58%	58%	0%
3. Recognition Of Tenure Rights	80%	75%	5%
4. Diversity Of Knowledge, Cultures and Institutions	80%	70%	10%
5. Devolution	50%	65%	-15%
6. Strategic Vision, Learning and Direction	73%	67%	7%
7. Coordination and Coherence	40%	67%	-27%
8. Accountability	80%	100%	-20%
9. Grievance and Conflict Resolution	40%	50%	-10%
Average Performance	**61%**	**67%**	**-6%**

Figure 1.2. Governance Indicators/Criteria visualization. Comparison between 2022 and 2024 at Arcachon Bay Pilot Site.

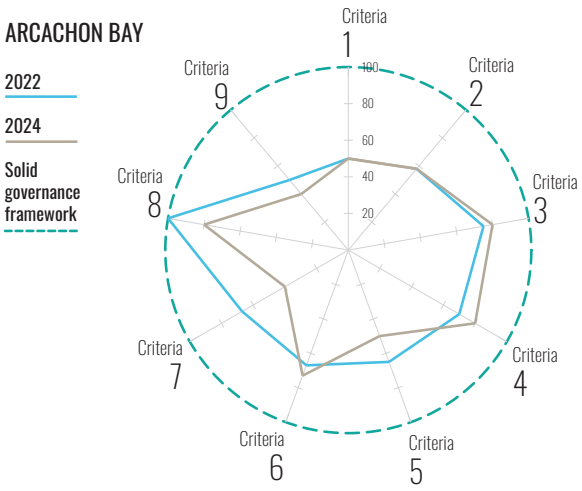
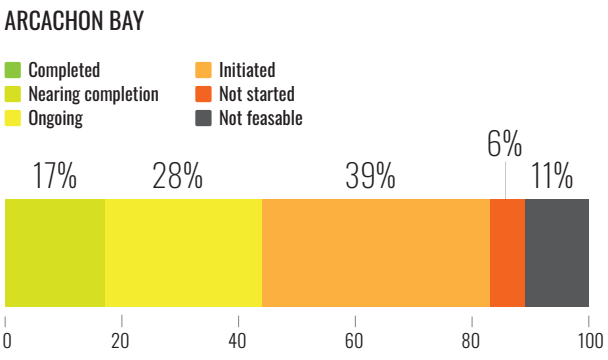


Figure 1.3. Progress on implementation of Roadmap actions in Arcachon Bay Pilot Site.



Moving forward, Arcachon Bay's roadmap highlights the importance of consolidating momentum where stakeholder interest already exists—particularly among local NGOs, oyster farmers, and scientific actors—while seeking strategic entry points into local governance forums. Facilitating joint scenario workshops and reinforcing partnerships with the MPA manager may open avenues for broader engagement. Building institutional trust through sustained knowledge transfer and demonstrating the co-benefits of restoration for climate adaptation and biodiversity will be key to overcoming entrenched resistance and fragmentation. In this context, low-risk, high-visibility actions—such as shared restoration protocols, joint funding applications, or the endorsement of donor seagrass sites—could serve as tipping points to unlock more ambitious, system-level governance reforms in the years ahead.

The implementation of governance roadmap actions in Arcachon Bay reveals a pattern where moderate technical and dissemination activities are underway, while actions requiring structural change remain stalled or uninitiated. Among the more advanced actions are those linked to knowledge-sharing and stakeholder engagement, including the development of restoration scenarios (Action 11i), the finalisation of Quick Scan Strategy Tool (QSST) assessments (Actions 7ii and 11ii), and participation in multiple dissemination events (Action 11iii). These actions have been enabled by the technical leadership of project partners and the delivery of tangible results from seagrass restoration and ecosystem service modelling. The enablers (Table 1.2) include demonstrated restoration co-benefits across biodiversity and coastal resilience, the use of scenario planning tools, and targeted communication efforts that connect scientific knowledge with practical restoration strategies.

In contrast, **barriers** (Table 1.2) to deeper governance transformation are clear in the many actions marked as "Not Started" or "Not Feasible". These primarily relate to the site's lack of formal institutional engagement and the limited influence of project partners in local decision-making. For instance, several actions (Actions 1, 7i, and 13) remain unfeasible due to the project's external positioning with respect to local governance processes. In other cases, (e.g., Actions 9 and 10), the lack of political willingness to revise regulatory frameworks or mobilise funding mechanisms has slowed progress. Additionally, fragmentation among local institutions and the dominance of socio-economic interests (particularly oyster farming) continue to obstruct efforts to integrate restoration into formal coastal management strategies. Therefore, one of the outputs of the project is to try to collaborate further with oyster farmers on this topic, mainly exploring 2 possible actions:

- Modelling the position of oyster farms at basin scale and analysing their effects on *Zostera* distribution, as they influence hydrodynamics. Adjusting the position of the concessions, and building interest in this area may be an option to combine large scale ecological restoration and oyster farming performance
- Using *Zostera* meadows inside oyster farm concessions as transplanted banks might also be an option to allow oyster farmers to bring greater value to the ecosystem and enhance the transplantation of *Zostera* on suitable areas.

Finally, it is important to highlight that due to their status as private entities, the REST-COAST partners in this Pilot Site (Seaboost and Egis) face legal constraints that prevent them from formally participating in local governance structures or directly proposing strategic actions for implementation. This structural limitation restricts their ability to lead or institutionalize governance reform, even when backed by credible scientific outputs and restoration results.

Brent Goose (*Branta bernicla*).
(CC) D. Armange/ Wikipedia

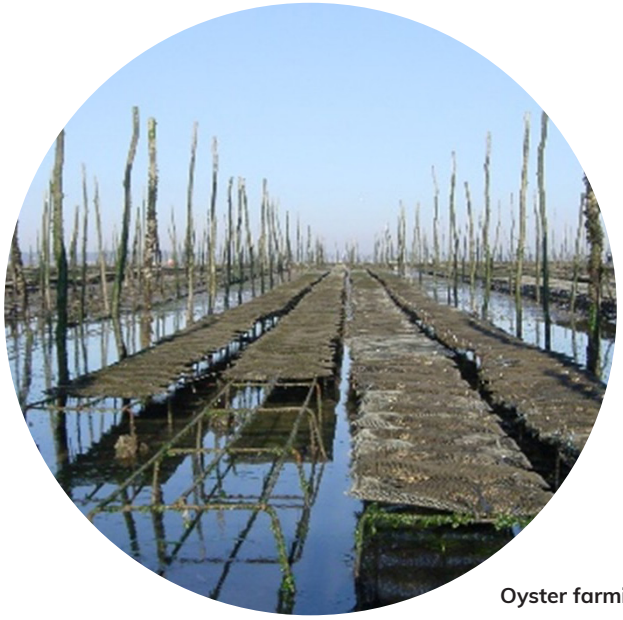
Table 1.2. Enablers and Barriers identified in Arcachon Bay through the Roadmap implementation.

ENABLERS	BARRIERS
• **Demonstrated Ecological Co-Benefits:** Pilot restoration actions (e.g., seagrass restoration) have provided tangible data showing benefits for biodiversity, carbon sequestration, erosion control, and ecosystem service delivery, helping to justify future upscaling.	• **External Positioning of Project Partners:** The project team operates outside of the local governance structure and has no formal mandate or authority in decision-making processes, limiting influence over structural reforms.
• **Quick Scan Strategy Tool (QSST):** Use of restoration scenarios with estimated ecosystem service outcomes have supported dialogue with local stakeholders and offers a foundation for strategic planning and cost-benefit discussions.	• **Lack of Political Willingness:** There is little local momentum or willingness to formalize funding mechanisms (e.g., carbon finance) or revise existing regulatory frameworks, even when tools and results are available.
• **Stakeholder Engagement via Dissemination:** Strong participation in scientific events and stakeholder briefings has improved awareness of the project and its outcomes among local actors, including NGOs and oyster farmers.	• **Fragmented Institutional Landscape:** Local governance is divided among multiple entities with differing visions, making it difficult to align on coastal restoration strategies or integrate ecosystem-based approaches.
• **Project Team Expertise:** REST-COAST partners (Seaboost, Egis) bring technical credibility and data-driven insights to restoration planning, supporting their legitimacy as external experts in governance dialogues.	• **Prevailing Socio-Economic Interests:** Oyster farming and related marine activities dominate management decisions, often taking precedence over ecological restoration goals—particularly in conflict-prone areas like channel edges.
• **Openness to Collaboration for Scenario Development:** Some local entities have shown receptiveness to integrating results into longer-term planning processes, especially in areas like ecosystem services and seagrass management strategies.	• **Stalled Policy and Legal Reforms:** Actions requiring regulatory changes (e.g., management plan updates, regulations enabling seagrass transplant) are delayed due to systemic inertia and lack of clear ownership or responsibility.
	• **Absence of Coordinated Strategy:** No overarching restoration strategy exists for the basin, and stakeholder actions remain reactive and opportunistic, tied to available funding rather than long-term planning.
	• **Low Score on Grievance Resolution:** No conflict resolution mechanisms are in place to address tensions among users (e.g., oyster farmers vs. ecological restoration advocates), creating risks for future implementation.

1.2 Recommendations for strengthening progress on Roadmapped Actions

The Arcachon Bay Pilot Site has shown moderate progress on governance roadmap actions, with over half of the 18 actions initiated, ongoing, or nearly complete. Nevertheless, implementation faces some structural constraints, notably limited formal involvement in local governance, institutional fragmentation, and competing socio-economic priorities. Several targeted interventions could strengthen progress on governance transformation.

Firstly, enhancing the integration of ecological restoration within local governance could be achieved by systematically leveraging the QSST already developed. Presenting these quantified ecosystem service benefits in clear, stakeholder-specific formats could better align restoration goals with institutional mandates, encouraging stakeholder buy-in and practical adoption. Secondly, to enhance the project team's external legitimacy and influence, efforts should build on existing recognition achieved through participation in local scientific events and basin-level meetings. Expanding this involvement through structured engagement (e.g., technical subgroups or restoration-focused roundtables within existing governance frameworks) could elevate the team's role from technical expert to strategic advisor without disrupting established governance arrangements. Then, developing approaches that combine local traditional stakes and ecological restoration is also an interesting option to onboard all stakeholders on these topics. This could be performed, for example, throughout the optimisation of the oyster farms´ layout patterns, by reaching reversal of artificial structures and renaturalization objectives, and targeting structures that negatively impact seagrass status.



Oyster farming.
© Mathis Cognat

In terms of stakeholder engagement, while awareness among NGOs, oyster farmers, and regulatory bodies is already strong, formalizing structured collaborations is critical. Proposed measures include developing a collaboratively designed mid- to long-term restoration roadmap, perhaps holding workshops based on QSST scenarios to forge consensus on feasible actions, and empowering influential "restoration champions" from sectors such as oyster farming and tourism to bridge ecological and economic interests. Yet, ecological restoration is still understood as a possible competition for other activities, and the need for demonstration in all sectors remains strong.

Finally, for governance roadmap actions currently classified as "Not Feasible" (due to limited institutional receptivity), it is advisable to deprioritize these actions, focusing instead on laying groundwork for future opportunities through sustained documentation, lessons learned, and ongoing dialogue with key institutional stakeholders. This approach ensures preparedness and flexibility when governance conditions evolve, maximizing long-term restoration opportunities under REST-COAST. Additionally, the growing recognition of REST-COAST results by local institutions has contributed to upscaling perspectives for 2025, with discussions underway around new restoration initiatives and the potential hosting of the World Seagrass Congress in the region.

1.3 Analysis of Governance actions at Adaptation Measure level

1.3.1 Adaptation Measure Category 1: (Coastal) Wetland Restoration

This category includes governance actions that directly support the implementation and upscaling of seagrass restoration interventions within Arcachon Bay, specifically restoring seagrass with new structures, reducing erosion and dredging requirements. These actions enable multi-stakeholder engagement, clarify roles and responsibilities, support evidence-based planning, and promote strategic knowledge dissemination to build legitimacy and institutional commitment for restoration across ecological and governance scales. The seagrass restoration efforts in Arcachon Bay are linked to erosion control, carbon capture, and biodiversity enhancement, and are reliant on integrated governance support to transition from pilot to basin-scale restoration.

ARCACHON BAY ACTION 2: Need to assess the benefits gained from upscaled restoration scenarios, so that they can be integrated in a multi-stakeholder decision-making process and to justify restoration actions.

This action is intended to generate quantified, site-specific data on the benefits of large-scale seagrass restoration to inform and legitimize multi-stakeholder governance processes. The quantification of ecosystem service benefits—such as carbon sequestration, erosion control, and biodiversity support—is essential to increase acceptance and alignment across governance actors. Within the Arcachon Bay context, where governance is fragmented and external project partners lack formal authority, these assessments offer a pathway to insert technical evidence into otherwise opaque decision-making processes. While institutional coordination remains weak, efforts are ongoing to integrate restoration results into future regional planning.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• Use of Quick Scan Strategy Tools (QSST) under REST-COAST to monitor outcomes and communicate value. • Credible, science-based outputs from restoration pilots bolster stakeholder discussions. • Use possible funding opportunities to replicate REST-COAST pilot action on other sites / situation to demonstrate the feasibility of upscaling on the field.	• REST-COAST partners operate outside formal governance structures. • Weak coordination and shared decision-making culture at local level. • No dedicated local funding to demonstrate upscaling potential.

ARCACHON BAY ACTION 5: Improve and develop local strategies by defining the strategic vision, team learning, and project direction, which is decided according to each institution and its scope (given that there is no possibility at this stage to build a common strategy on large-scale coastal restoration).

The goal of this action is to contribute to long-term planning for seagrass restoration through institutional learning and scenario-based insights, despite the absence of a unified strategy for Arcachon Bay. REST-COAST activities support forward-looking reflections within individual institutions, creating building blocks for a future shared strategy. Given that large-scale restoration remains politically sensitive, particularly in zones dominated by oyster farming, this decentralised approach still lays important groundwork for institutional alignment.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**

ENABLERS	BARRIERS
• Delivery of long-term insights and restoration scenarios through REST-COAST outputs. • Openness among some local institutions to integrate external knowledge. • Demonstration of short-term tangible and realistic outputs such as carbon credits / offset opportunities.	• No basin-wide restoration strategy exists. • Strategic fragmentation persists across agencies.

ARCACHON BAY ACTION 7i, 7ii, 7iii: Define for future upscaling actions what entities can contribute and to what extent, according to the targeted benefits identified for the project.

This set of actions aims to predefine institutional roles and responsibilities in future upscaling efforts by clarifying who benefits from restoration (e.g., in flood mitigation, biodiversity, or carbon sequestration) and who should contribute to financing or implementation. The goal is to build a more formalized governance architecture by leveraging the Quick Scan Strategy Tool (QSST). Arcachon faces fragmented governance with institutions operating in silos; this action is meant to shift roles from passive observation to co-responsibility.

GOVERNANCE INDICATOR: **GOVERNANCE STRUCTURE**

ENABLERS	BARRIERS
• Finalisation of QSSTs to attribute benefits across governance domains. • Demonstrated benefits from pilot restoration serve as legitimacy anchors.	• Difficulty in assigning responsibilities in a multi-actor landscape. • Institutions act within narrow mandates and often lack incentive to collaborate.

ARCACHON BAY ACTION 10: Propose an evolution of the regulatory framework, allowing to use *Zostera* meadows on oyster farming concessions as donor sites to restore natural areas that could benefit from transplants/seedlings.

This action supports the institutional embedding of seagrass restoration in Arcachon through regulatory innovation. The aim is to develop a legal and governance mechanism that allows the use of *Zostera* beds on oyster farming concessions as donor sources for restoration efforts. It connects ecological function with local economic interests, aiming for co-benefits and stakeholder buy-in. Though still under development, this regulatory pathway is critical for scaling restoration beyond isolated pilot interventions. Successfully demonstrating the ecological and economic co-benefits of using oyster concessions—either as donor sites for *Zostera* transplants or through the optimisation of their settlement pattern—could help shift the prevailing local mindset. Rather than being viewed as a competing interest, restoration could be reframed as a strategic opportunity for oyster farming enhancement. This win-win framing has the potential to build trust, generate political traction, and serve as a catalyst for broader acceptance and scaling of nature-based restoration within Arcachon Bay's governance landscape.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**

ENABLERS	BARRIERS
• Interest from local stakeholders in the proposed approach. • Possible involvement of CRC and oyster farmers which may release one of the major breakthroughs in upscaling, as restoration still remains considered as a possible competition for oyster farming at basin scale.	• Dependent on the future Arcachon Basin seagrass management strategy and demonstration of feasibility in a dedicated project. • The action does not fit with the regulatory framework and the MPA manager policy for now.

ARCACHON BAY ACTION 11i, 11ii, 11iii: Promote and increase stakeholder engagement and collaboration, by providing restoration scenarios with quantified expected benefits that necessarily involve multiple stakeholders, creating workshops to build a shared decision-making process, and increasing dissemination and commitment from local actors.

The combined goal of these actions is to build stakeholder understanding and support for seagrass restoration by disseminating restoration scenarios that include quantified ecosystem benefits (via QSST). These serve as vehicles for collective discussion and long-term buy-in, especially in a context where external project actors lack formal governance roles. They also aim to widen the network of involved actors beyond regulators and into user groups (e.g., oyster farmers, NGOs).

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• Finalisation and communication of QSST scenarios. • Extensive participation in scientific and local events (JNGCGC, World Seagrass Congress). • Openness of some local stakeholders to scenario outputs.	• Dissemination does not guarantee influence—REST-COAST team still external to governance core.

ARCACHON BAY ACTION 12. Reinforce the team's position as external experts to gain legitimacy and opportunities to present and share project results by highlighting restoration benefits in terms of ESS to create a new consensus across local actors to support together restoration actions.

This action aims to improve the legitimacy of REST-COAST partners as trusted contributors to local seagrass restoration governance, despite their formal exclusion from Arcachon's decision-making structures. By using hands-on restoration results and ecosystem service benefits (e.g., biodiversity gains, erosion control, carbon capture), project partners hope to influence the mindset of local actors and shift the governance culture toward a shared restoration agenda. This is critical in a context where fragmented institutions and socio-economic interests, particularly oyster farming, often overshadow ecological concerns.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**

ENABLERS	BARRIERS
• Demonstrated ecological co-benefits (seagrass, erosion reduction, carbon sequestration). • Technical credibility of the project team backed by restoration data and scenario modelling.	• No formal mandate or position in governance frameworks; influence is informal. • Lack of a shared restoration strategy among governance stakeholders.

ARCACHON BAY ACTION 14: Continue to collect data through monitoring/modelling on the effectiveness of coastal restoration and integrate findings in communications and outreach efforts.

This action focuses on enhancing adaptive learning and stakeholder understanding through rigorous monitoring and modelling of seagrass restoration outcomes. By integrating results on biodiversity, flooding, erosion, and carbon capture into broader communication and outreach processes, the action supports long-term ecosystem-based management, and builds a transparent evidence base for future restoration initiatives. In Arcachon, where governance authority is dispersed and formal collaboration remains limited, this action strengthens the role of data as a bridge between science and policy. One opportunity could be to integrate oyster farming as a tool for restoration, considering their effects on hydrodynamics at basin scale and on the distribution of seagrass. Combining the optimization of the settlement pattern of oyster farms in terms of production, but also in terms of hydrodynamics control at large scale may be an opportunity to onboard SIBA and CRC on restoration actions with low efforts and high benefits.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**

ENABLERS	BARRIERS
• Substantial pre- and post-restoration data collection (carbon storage, erosion, BDV indicators). • Ongoing modelling to assess multi-ESS outcomes of seagrass restoration. • "Low cost" hydrodynamics control with a contribution to local key activities.	• Data production does not automatically ensure integration into decision-making without formal governance links. • Long-term approach to onboard oyster famers and SIBA on the project and gathering funds.

1.3.2 Remaining Governance Actions: Project Implementation and Governance Systemic Transformation

In the context of Arcachon Bay, this set of actions address legal alignment, accountability, coordination, funding structures, and the integration of restoration priorities into formalised management frameworks.

ARCACHON BAY ACTION 1: Provide governance stakeholders greater accessibility to a clearly defined R&R to ensure a holistic and transversal approach of all ESS.

This action targets the foundational misalignment in governance by promoting greater transparency and accessibility of roles and responsibilities among stakeholders. Having key partners external to the governance system constrains direct impact. However, their ability to demonstrate the ecological co-benefits of seagrass restoration through ESS metrics contributes indirectly by supporting more collaborative governance processes. While the Pilot team lacks formal authority, the results they deliver serve as critical inputs into cross-institutional dialogues on ecological restoration. Establishing a clear governance framework would enable more structured decision-making for scaling up *Zostera* restoration, clarifying responsibilities for implementation and monitoring.

ARCACHON ACTION 3: Improve the interaction of local stakeholders involved in the management of the area (local governance, tourists, oyster farmers, scientists, area managers, and so on), all with very different objectives and priorities. *(Currently marked as Not Feasible)*

While this action is not formally active, it identifies a crucial governance issue: divergent stakeholder priorities in a high-use coastal zone. REST-COAST has already worked with NGOs and oyster farmers during restoration operations, offering proof of concept for seagrass-related multi-actor collaboration. Demonstrating how restoration yields benefits across ecological and socio-economic domains has been a vital entry point for improving dialogue, even without direct action. Its relevance to seagrass restoration is that stronger interaction frameworks can build shared ownership of restoration outcomes, particularly when user groups (e.g., oyster farmers) are engaged in co-benefit strategies like donor meadow transplants.

ARCACHON ACTION 4: Define and implement the decision-making process, mostly led at a local scale and each regional entity with its own understanding and strategy regarding climate change adaptation rules and processes.

This action focuses on the lack of harmonised governance approaches within Arcachon, where local and subnational actors have uncoordinated strategies. Provision of quantified restoration outcomes can guide the development of a more unified, evidence-based strategy. Decision-making fragmentation hampers the scaling of seagrass initiatives. Coordinated, cross-agency governance is key to institutionalising restoration at basin scale.

ARCACHON ACTION 6: Support grievance and conflict resolution regarding the use of the channels' edges by oyster farmers (which are ongoing), in addition to other conflicting interactions between entities. *(Currently marked as Not Feasible)*

This action identifies critical socio-ecological tensions that directly affect where and how restoration can occur. Oyster farming remains dominant in Arcachon and often overrides ecological priorities. REST-COAST has explored engagement mechanisms, such as using oyster concession seagrass for restoration seeding, which may help reduce conflict. These initiatives are expected to be formalised in the post-2025 local seagrass strategy. Conflict resolution is essential to unlock physical space for seagrass restoration and enable long-term site access and support.

ARCACHON ACTION 7i, 7iii: Define financial arrangements with dedicated leaders and define consistent funding mechanisms and intervention protocols.

This action addresses the chronic underfunding of restoration and the lack of institutional commitment to develop coherent finance strategies. While local authorities have shown little willingness to establish sustainable funding streams (e.g., carbon finance), REST-COAST's pilot work and bidding experience provide a testing ground for future models. Demonstrating cost-effectiveness and co-benefits is key to influencing local mindsets. Without targeted funding mechanisms, large-scale *Zostera* restoration will remain limited to opportunistic projects; formalising finance strategies is critical for scale.

ARCACHON ACTION 8: Get progressively involved in strategic meetings to provide input in terms of restoration possibilities and limits. Bond with the local MPA manager to support the project's results and transfer them to local stakeholders, in the frame of committees that are already in place to drive local governance actions.

This action reflects REST-COAST's soft power strategy—building credibility and influence through scientific results, without formal decision-making power. Engaging the MPA manager and contributing to local governance discussions help ensure restoration results are translated into governance practice. Establishing advisory roles for technical partners can improve evidence-based decision-making on habitat management and long-term planning.

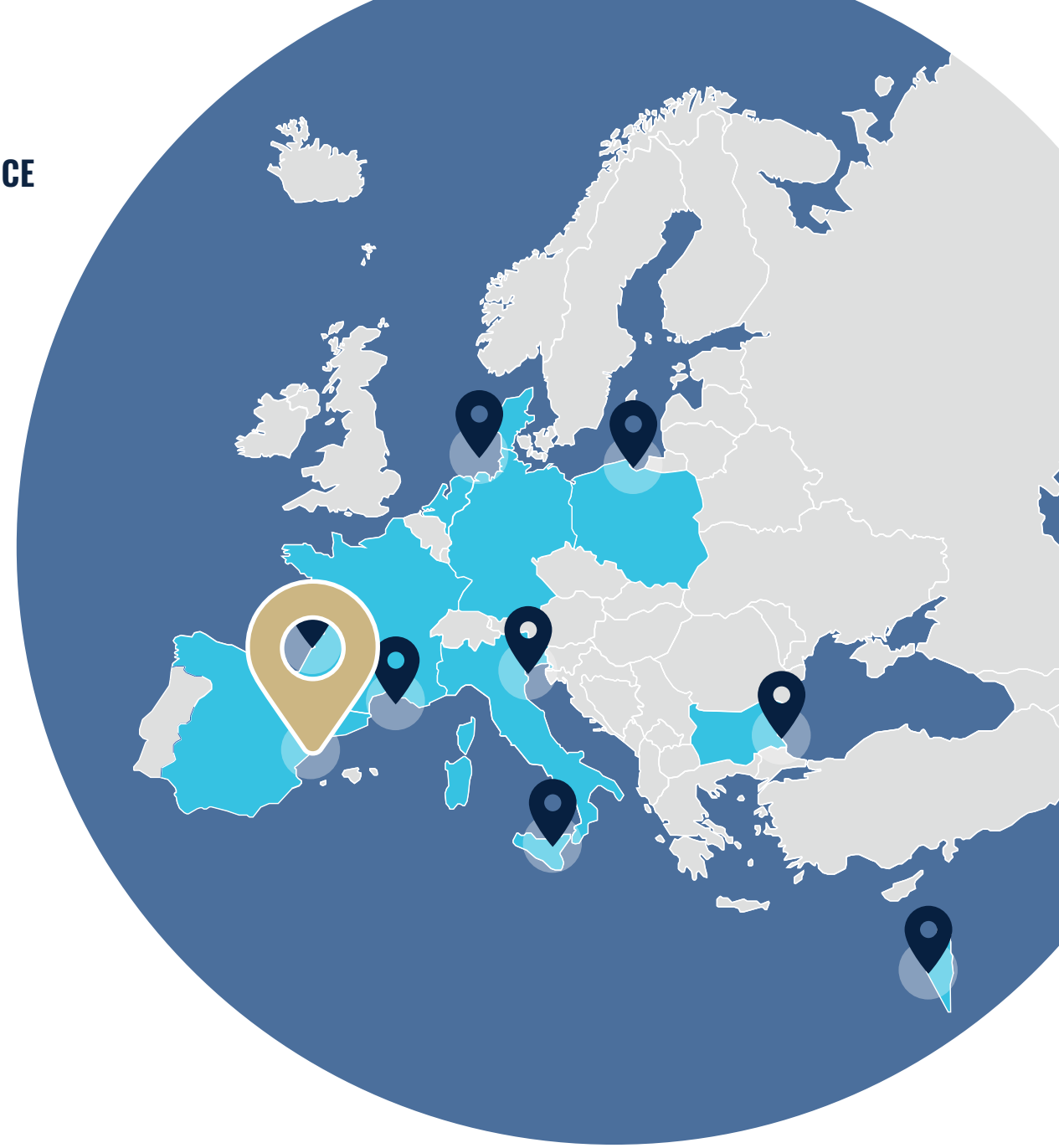
ARCACHON ACTION 9: Share field results with local regulatory institutions so that they may facilitate future upscaling actions based on the same approaches.

This action reinforces the value of dissemination and transparency, targeting institutional uptake of restoration outcomes. Despite partners being outside the governance system, REST-COAST data is being used by the MPA manager, positioning their outputs for indirect influence.
Institutional uptake of these data is a precursor to regulatory or funding shifts needed for wider implementation of seagrass restoration.

ARCACHON ACTION 13: Implement the identified governance reforms according to the improvement planning. *(Currently marked as Not Feasible)*

This action remains unfeasible due to the external positioning of Seaboost and Egis, who have no authority over local governance structures. However, by delivering restoration insights, they can inform policy reform indirectly. Governance reforms must eventually codify restoration as a management priority—an outcome this action seeks to support, even if indirectly at present.

PILOT SITE GOVERNANCE BRIEFS



REST-COAST

2. EBRO DELTA

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With collaboration from pilot site teams

July 2025

Funded by the European Union

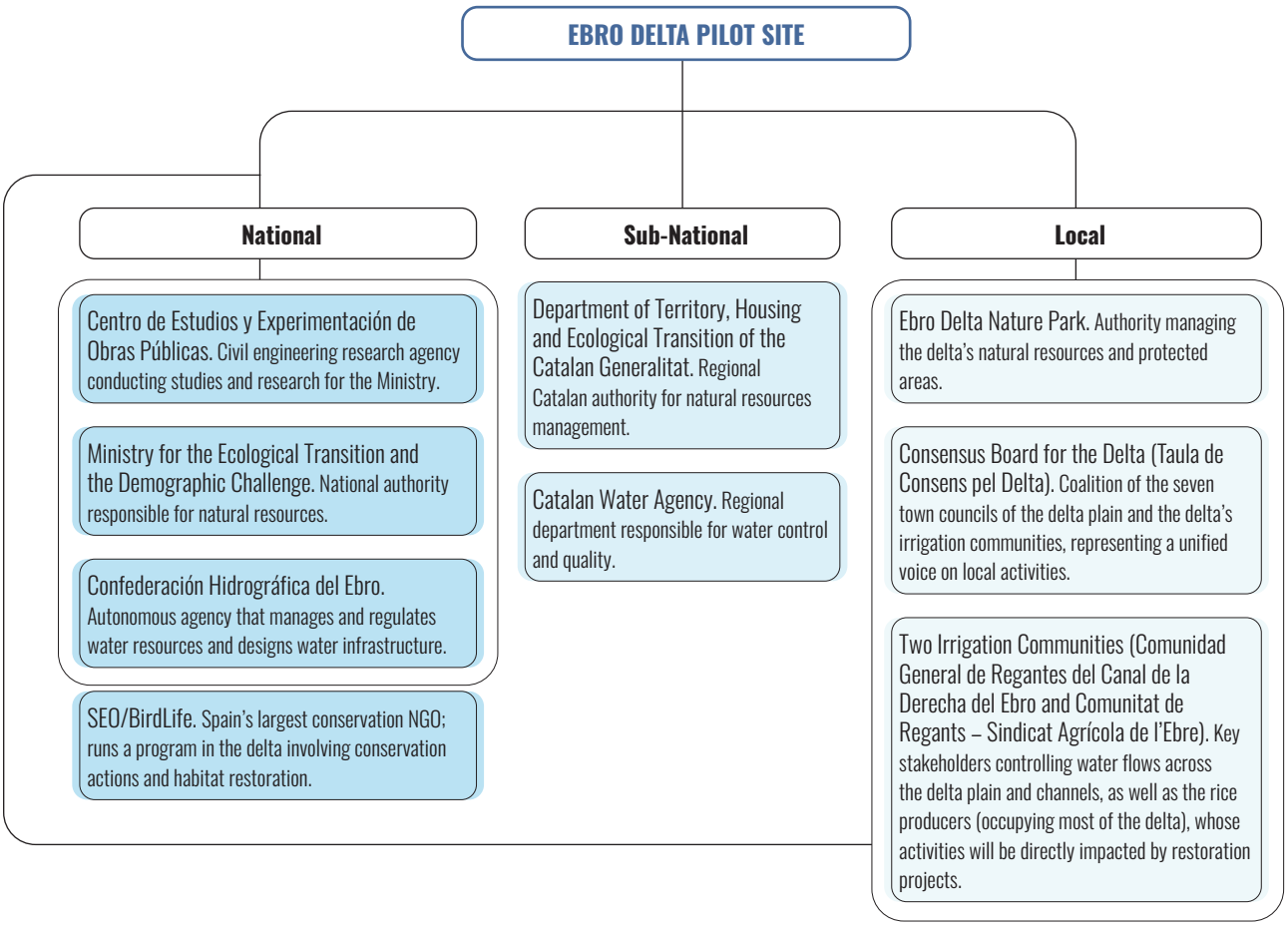
2. EBRO DELTA

The stakeholder map in the Ebro Delta Pilot Site highlights a wide range of actors across different levels, each playing a key role in restoration efforts (Figure 2.1). At the national level, several institutions provide technical expertise and oversee resource management. Subnational authorities belonging to the Catalan government are responsible for natural resources and water quality, while local actors manage protected areas, coordinate community input, and represent agricultural interests. This complex structure reflects the need for strong coordination and dialogue to ensure effective and inclusive restoration outcomes.

2.1 Pilot-wide governance framework: State of play and analysis of roadmapped actions

The Ebro Delta Pilot Site has demonstrated some progress in its governance transformation over the course of the project. Regarding **governance criteria/ indicators**, "*Diversity of knowledge, cultures and institutions*" showed a notable improvement in metrics (40%) compared to the rest, followed by "*Devolution*" and "*Grievance and Conflict Resolution*" (20% for both criteria) (Table 2.1 and Figure 2.1). The Site was provided with a total number of **18 proposed actions** in its **governance roadmap.** The review of progress

Figure 2.1. Stakeholder map for the Ebro Delta Pilot Site.



on the implementation of these actions reveals that most of the activities (68%) are nearing completion or are underway (Figure 2.3), notably those related to enhancing governance structures, aligning traditional knowledge with restoration strategies, promoting knowledge sharing, and fostering stakeholder engagement for restoration activities.

Table 2.1. Results from governance self-assessment at Ebro Delta Pilot Site by criteria in 2022 and 2024.

GOVERNANCE CRITERIA	Performance Rates		Variation from 2022 to 2024
	2024	2022	
1. Governance Structure and Legal Alignment	47%	37%	10%
2. Inclusive and Effective Decision-Making	60%	75%	-15%
3. Recognition Of Tenure Rights	80%	65%	15%
4. Diversity Of Knowledge, Cultures and Institutions	40%	0%	40%
5. Devolution	75%	55%	20%
6. Strategic Vision, Learning and Direction	40%	47%	7%
7. Coordination and Coherence	60%	47%	13%
8. Accountability	40%	50%	-10%
9. Grievance and Conflict Resolution	70%	50%	20%
Average Performance	**57%**	**47%**	**10%**

While actions nearing completion demonstrate the potential for enabling effective governance transformation through strategic planning and stakeholder engagement, several other actions—whether ongoing, newly initiated, or not yet started—highlight significant barriers including shifting political contexts, conflicting stakeholder priorities, and complex governance structures. By analysing these influences, this Pilot Site can gain insights into the underlying dynamics that either facilitate or hinder progress. The enablers and barriers identified through the roadmap assessment can be grouped into several key topics (Table 2.2), each with distinct implications for governance transformation, which can be further integrated into adaptation pathways.

Actions such as promoting knowledge sharing and co-creating restoration strategies rely heavily on active stakeholder participation and the effective integration of diverse perspectives. The CORE-PLAT workshops served as a crucial platform for dialogue, fostering a collaborative environment where stakeholders can align their visions, share knowledge, and build consensus on restoration approaches. Their goals' alignment around the imperative need for coastal restoration, as well as building trust and respect among them, has enabled progress on several governance actions. However, achieving more inclusive and effective decision-making remains a challenge due to differing economic interests and narratives among stakeholders.

Figure 2.2. Governance Indicators/Criteria visualization. Comparison between 2022 and 2024 at Ebro Delta Pilot Site.

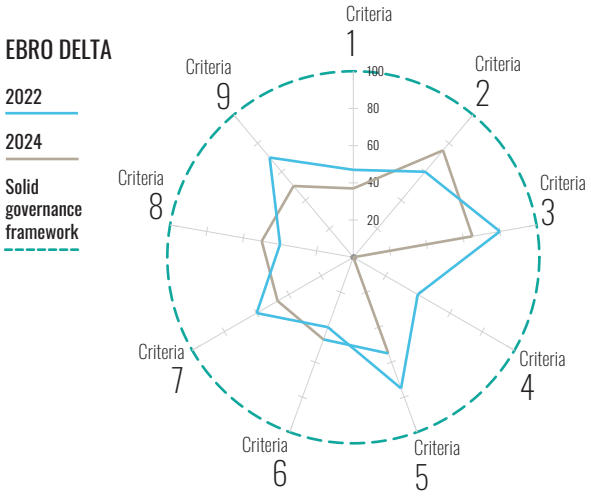
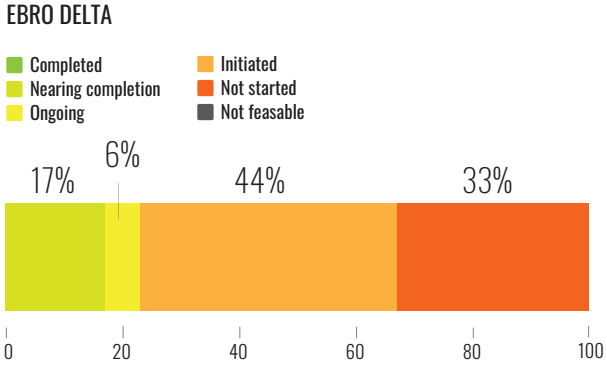


Figure 2.3. Progress on implementation of Roadmap actions in Ebro Delta Pilot Site.



Among the key **enablers** identified there is a clear understanding of institutional roles and responsibilities within the governance structure, particularly within the CORE-PLAT framework. This clarity provides a strong foundation for coordinated action, especially in relation to integrating diverse knowledge systems and fostering stakeholder engagement. These efforts have been supported by other critical enablers such as strong stakeholder synergies and collaboration among REST-COAST partners, which have increased accountability and are facilitating the goals of upscaling restoration efforts. The integration of traditional knowledge with green infrastructure planning, spearheaded by EURECAT, has also fostered a more inclusive and comprehensive approach to restoration and resilience. Additionally, institutional frameworks, such as sediment management plans within the Ebro basin, provide a strong foundation for ongoing and future collaborative actions.

Despite these positive developments, challenges remain particularly around aligning diverse stakeholder interests, navigating complex governance structures, and securing long-term resources for sustainable monitoring and adaptive management practices. The assessment reveals significant **barriers** to progress, notably the lack of a long-term shared governance structure and the insufficient inclusion of diverse stakeholders in the decision-making processes. Divergences between national and subnational approaches further complicate efforts to establish a cohesive strategy. Meanwhile, the absence of effective accountability mechanisms and measurable outcomes limit the ability to manage restoration actions effectively. In addition, there are apparent gaps in the strategic vision and coordination across governance levels, which hinder the development of a coherent approach to restoration, and it seems that the decision-making processes are not fully inclusive or co-creative. This dynamic, coupled with lower scores for metrics associated to lack of clarity, equitable tenure rights and a weak framework for grievance and conflict resolution, pose challenges to achieving effective governance outcomes. To move forward, the Ebro Pilot Site could consider focusing on strengthening coordination, building a unified strategic vision, enhancing inclusivity in decision-making, and establishing robust accountability mechanisms to support sustainable restoration practices.

Fangar Bay, in the northern hemidelta, with the bivalve farms.

Table 2.2. Enablers and Barriers identified in Ebro Delta through the Roadmap implementation.

ENABLERS	BARRIERS
• **Strong Stakeholder Synergies and Collaboration:** A key enabler for the Ebro Delta Pilot Site is the strong cooperation between stakeholders and REST-COAST partners, which supports the scaling of restoration efforts. The Spanish coastal authority's involvement in actions like the beach nourishment strategy shows a collaborative environment where stakeholders work together on shared goals. Local stakeholders also agree on the need for coastal restoration, which helps coordinate efforts and pool resources, advancing governance actions. Multi-stakeholder collaboration platforms like CORE-PLAT have strengthened both horizontal and vertical governance across the Ebro Delta. Restoration actions in wetland, sediment, and food production governance benefited from structured co-creation, enabling shared vision and accountability.	• **Political Instability and Changing Contexts:** Political instability and frequent changes in governance at the Ebro Pilot Site are major barriers to transformation. These shifts in priorities and policies make it difficult to set consistent, long-term strategies for coastal restoration. Adjusting governance roles after political changes disrupts continuity and slows progress on important initiatives.
• **Support for Knowledge Integration and Adaptive Management:** Efforts led by EURECAT, with support from other stakeholders, to develop green infrastructure plans have greatly promoted knowledge sharing and adaptive management at the Ebro site. These actions combine traditional knowledge with modern restoration techniques, leading to more inclusive and informed decision-making. Monitoring-based decision mechanisms, such as those by the Ebro Delta Natural Park, further support flexible and responsive governance. Knowledge integration has been supported not only by green infrastructure work, but also by REST-COAST technical studies on sediment and coastal dynamics, which informed strategic actions in both ecological and agricultural planning.	• **Complex Governance Structures and Misaligned Timings:** Governance at the Ebro site is complicated by overlapping responsibilities and differing priorities among stakeholders. This makes it hard to reach consensus and coordinate actions. The misaligned timing of different restoration efforts, combined with slow pilot coordination, further complicates efforts to align diverse interests, often taking more time than expected. Delays in administrative permitting, especially for sediment-based restoration, and asynchronous timelines across environmental and agricultural sectors, undermine coordinated implementation.
• **Existing Institutional Frameworks and Prior Agreements:** Existing frameworks and agreements among stakeholders, like those in sediment bypass plans within the Ebro basin, provide a solid foundation for collaboration. These frameworks help stakeholders work together more effectively by aligning strategies across different policies and governance levels, ensuring smoother coordination. Existing frameworks and institutional memory, including prior agreements in sediment, wetland, and food production domains, have helped anchor governance continuity and facilitate upscaling.	• **Diverse Stakeholder Narratives and Interests:** A key challenge is the variety of stakeholder perspectives, which makes it difficult to align visions and create common ground for restoration. Each group has its own views, making it hard to meet different needs and expectations. This lack of alignment slows down actions that require unity, such as improving governance structures and decision-making. The repeated efforts without meeting expectations also risk disengaging stakeholders. Narrative fragmentation among stakeholders—ranging from differing views on sediment strategies to the integration of local/traditional practices—continues to complicate consensus, particularly in participatory governance forums like CORE-PLATs.
	• **Limited Resources and Project-Dependent Monitoring:** Limited resources and the reliance on short-term project funding are significant barriers to the long-term success of governance actions. Although there is strong support for monitoring-based decision-making, the lack of a dedicated long-term budget makes it hard to maintain ongoing programs that support adaptive management. Without stable funding, it's difficult to scale successful interventions and maintain momentum once project resources are exhausted. Beyond funding shortages, monitoring remains fragmented across institutions, resulting in duplicated efforts and data gaps that limit its strategic value for decision-making and collective accountability.

2.2 Recommendations for strengthening progress on Roadmapped Actions

For the Ebro Delta Pilot Site, the proposed actions that have not started are primarily related to stakeholder alignment, political contexts, and resource limitations. Actions such as improving informed decision-making, creating a strategic view of the Pilot area, and establishing a collaborative stakeholder engagement platform are feasible in principle but require overcoming significant barriers to reach tipping points that can unlock progress. A key tipping point for many of these actions would be the successful engagement of stakeholders in a meaningful dialogue that leads to a shared vision and commitment to long-term goals. Efforts to facilitate and enhance the implementation of the roadmapped actions might include targeted CORE-PLAT workshops focused on building consensus, aligning interests, and fostering trust among diverse stakeholder groups. Additionally, securing sustained funding and political support within a proper policy framework would be crucial for moving forward with actions that currently lack feasibility while ensuring continuity beyond project timelines. By addressing these critical barriers and leveraging existing synergies and collaborative frameworks, the Pilot Site can enhance the feasibility of its governance actions and advance toward its restoration objectives. Finally, continued emphasis on transparent communication, regular engagement, and building a shared understanding of the long-term benefits of restoration could also be positive to enable the execution of the governance roadmap's recommended actions.

2.3 Analysis of Governance actions at Adaptation Measure level

2.3.1 Adaptation Measure Category 1: (Coastal) Wetland Restoration

This category encompasses governance actions that support or enable the recovery, reconnection, expansion, and sustainable management of the coastal fringe, including beach and dune systems, wetlands and saltmarshes and coastal lagoon in the Ebro Delta. These actions may facilitate physical restoration through planning, stakeholder collaboration, knowledge integration, or policy alignment mechanisms that directly relate to wetland ecosystems (e.g., Alfacada and Bombita).

Salicornia (*Arthrocnemum fructicosum*).
(CC) Vatadoshu/ Wikipedia

EBRO ACTION 10: Ensure inclusive participatory processes are integrated into the governance improvement planning to define the strategic vision, increase consensus across conflicting interests, and to develop further the management schemes.

This action underpins the legitimacy and longevity of restoration through participatory governance and strategic direction to institutionalise inclusive planning mechanisms (e.g., CORE-PLAT) where local communities, technical experts, and public authorities jointly define restoration visions and design adaptive wetland management schemes. It supports the continuity of restoration efforts and ensures the social sustainability of wetland projects like Alfacada, enabling inclusive visioning processes that could lead to shared restoration planning in wetland zones. CORE-PLAT has been identified as a key arena where participatory co-definition of restoration pathways is possible. It is increasingly being used as a soft governance platform to reduce tensions and build consensus on ecological priorities (e.g., wetland connectivity, biodiversity conservation). Although consensus is not always achievable (e.g., one key representative of CORE-PLAT opposes the realignment strategy aimed at creating "room for the coast" in cultivated areas, even those with low productivity due to their low elevation and proximity to the sea) the platform has already produced tangible results. Notably, the corresponding Spanish Ministry, another major stakeholder, is now scaling up the coastal restoration strategy piloted in Alfacada. As such, the Alfacada intervention has served as a catalyst for implementing the REST-COAST coastal restoration philosophy in other areas of the delta and has successfully mobilised funding sources beyond the project itself.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• Stakeholders are currently working on a level playing field with goodwill and a shared vision for restoration. • There is accumulated trust based on the multi-year process of stakeholder engagement under REST-COAST. • Prior co-creation processes (like CORE-PLAT) have laid the groundwork for inclusive participation. • Institutional support for participatory processes is growing, with shared knowledge frameworks helping to align visions.	• Inclusion gaps persist, particularly in recognising and integrating non-institutional stakeholders (e.g., citizen groups, small-scale farmers, informal land users). • Complex governance structures and overlapping competencies make it difficult to consolidate a common strategic direction. • Stakeholder fatigue and previous unsuccessful engagements can erode participation. • Political instability continues to challenge sustained consensus building.

Rigid coastal structure protecting the Vascos restaurant.

© Taula de Consens, Aguaita.cat

EBRO ACTION 12i: Co-create with other stakeholders' restoration actions with clear goals, promoting accountability and increasing engagement with multiple stakeholder groups.

This is a tangible governance-enabling step directly tied to a physical wetland restoration project, illustrating upscaling potential when governance mechanisms (CORE-PLAT, co-creation workshops) are used effectively. The strategic objective of this action is to support wetland restoration (e.g., Alfacada project or Bombita coastal fringe) through clearly defined co-designed actions that improve trust, reduce conflict, and promote shared ownership, catalysed by REST-COAST's facilitation of the national Coastal Authority's managed retreat and realignment strategy that together with a backshore habitats restoration (e.g. saltmarshes and coastal lagoons) is expected to provide room for the coast and, thus, increase the resilience of human infrastructures (e.g., rice fields) to climate change effects such as sea level rise and increasing frequence and magnitude of storm surges. REST-COAST has provided both the scientific foundation and participatory assessment to initiate the intervention, and this action supports planning and monitoring of wetland restoration. The restoration of the Alfacada lagoon system began with the removal of an artificial dyke to re-establish natural ecological processes. This intervention enabled the monitoring of subsequent changes in habitats, biodiversity, and ecosystem services. The success of this initial action served as a catalyst for expanding similar restoration efforts to other coastal areas of the Ebro Delta, such as Bombita. In this case, the intervention was active but focused on restoring key ecological processes, thereby enabling the passive recovery of habitats over time. The approach followed a dual funding model: the REST-COAST project financed the design and planning phase, aligned with its philosophy of decarbonizing the coast and promoting nature-based, process-led restoration, while the Spanish Ministry funded the implementation. A similar strategy is now being applied to another stretch of the Ebro Delta's coastal fringe, known as "Niño Perdido".

GOVERNANCE INDICATOR: **ACCOUNTABILITY**

ENABLERS	BARRIERS
• National authorities recognised the value of technical assessments (e.g., sediment and coastal dynamics, shoreline retreat) and stakeholder dialogues held during the project. • The Spanish coastal authority's involvement in the "room for the coast" strategy demonstrates alignment of action with scientific evidence. • Monitoring initiatives offer a foundation for adaptive management and coordination. • Prior agreements and institutional memory among stakeholders further reinforce the implementation of co-designed restoration actions.	• The "room for the coast" strategy is not shared among all the local stakeholders as evidenced in some CORE-PLAT sessions • Previous actions were mostly site-specific and lacked a long-term vision or pathway for scaling. • Limited resources and project-dependent monitoring create fragility in follow-through. • Political shifts disrupt planning cycles. • Diverse institutional priorities and timelines also hinder integration of co-created actions into long-term planning frameworks.

Common reed (*Phragmites australis*).

2.3.2 Adaptation Measure Category 2: Sediment Management

This category includes governance actions that support the technical, policy, and multi-stakeholder dialogue necessary to plan and implement sediment bypassing, transportation and redistribution operations. These actions are crucial in the Ebro Delta context to address sediment deficits resulting from upstream dams, coastal erosion, and the retreat of the delta front. The aim is to re-establish sediment connectivity between the river basin and the delta coastline, thereby enabling ecological restoration (e.g., beach and wetland reinforcement) and long-term geomorphological resilience. In the case of the Ebro Delta, the national and subnational governments have adopted the narrative of a highly influential actor that prioritizes continuous artificial sand nourishment, thereby relegating the sediment bypass strategy to a secondary position.

EBRO ACTION 5: Establish a collaborative stakeholder engagement platform to facilitate dialogue, build consensus, and resolve conflicts related to reservoir sediment bypass, intervention strategies, and land-use changes.

This action addresses the governance needs related to sediment transport and allocation by proposing the creation of a collaborative platform for consensus-building around bypass systems and alternative sediment redistribution mechanisms. Given the Ebro Delta's sediment deprivation due to dam regulation upstream, such a platform would be useful to unblock decision-making barriers and explore nature-compatible solutions.
This initiative is particularly relevant as the Ebro Water Authority has recently included sediment bypass considerations in its strategic planning, although feasibility, design, and environmental trade-offs of various proposed interventions can at times be challenging. Establishing a collaborative stakeholder engagement platform is aligned with enabling sediment bypass planning and conflict resolution for sediment redistribution from reservoirs to the Delta plain, embedding discussions within broader concerns about river-delta disconnection and the declining ecological status of the coastline. The platform is envisioned to act as a neutral space (e.g., hosted by CORE-PLAT or an inter-administrative body) to address sediment transport options such as dam bypass, together with a more suitable river runoff management.
This action exemplifies the project's effort to establish enabling governance conditions for sediment-based restoration by facilitating inclusive and evidence-based dialogue among conflicting stakeholders and institutions, connecting basin-level water topics with coastal ecosystem needs to resolve technical and political deadlocks and barriers around sediment bypass.

GOVERNANCE INDICATOR: **GRIEVANCE AND CONFLICT RESOLUTION**	
ENABLERS	**BARRIERS**
• The Water Authority of the Ebro Basin has recently recognised sediment bypass needs in its basin management plans. • Existing agreements and strategic documents offer an entry point for coordination. • Multi-stakeholder recognition of sediment transport as a critical issue supports the need for collaboration. • Strong stakeholder synergies and the presence of informal forums such as CORE-PLAT enhance the platform's potential effectiveness.	• Conflicting institutional agendas, and absence of an empowered coordination entity. • Sediment transport remains politically sensitive. • Political shifts impact priority setting and consensus. • Misaligned timelines and resource limitations slow down progress. • Disagreements on feasible technical solutions persist, impeding unified action.

EBRO ACTION 9i, 9ii: Promote adaptive management as an effective method for coastal restoration project implementation, and promote regular updates of management schemes based on monitoring and increase awareness of administrative permitting system constraints to avoid delays.

This action seeks to institutionalise adaptive governance practices in the planning and execution of coastal restoration projects and facilitate institutional learning and quicker permitting for sediment measures like sediment bypass and river flow management together with a common strategy for coastal restoration actions. At the Ebro Delta site, the river sediment-related interventions face administrative bottlenecks and are hampered by fragmented permitting procedures. This action supports the establishment of feedback loops where monitoring data inform iterative adaptation of strategies, and regulatory delays are streamlined through multi-stakeholder reflection. The goal is to embed such tools into formal governance processes, avoiding dependence on isolated project-based monitoring, and to mainstream adaptive, monitoring-informed management and planning mechanisms for sediment-related restoration across regulatory and project cycles. REST-COAST has highlighted the urgent need for sediment-related adaptation and catalysed institutional awareness, and the project's technical studies have informed this governance priority, aligning ecological monitoring with institutional responsiveness.

GOVERNANCE INDICATOR: **STRATEGIC LEARNING, VISION AND DIRECTION**

ENABLERS	BARRIERS
• Existing technical know-how and willingness within institutions like the Natural Park to integrate adaptive mechanisms. • Stakeholder collaboration has supported pilot efforts in monitoring-based management. • REST-COAST technical studies and institutional awareness-raising support adaptive frameworks. • Prior agreements and cooperation between actors like MITERD and CH Ebro offer a platform for expanding coordination. • Strong support for knowledge integration and adaptive decision-making has been observed across stakeholder groups.	• Monitoring is still largely project-based and not systematically funded or institutionalised. • Bureaucratic inertia often delays permit approvals for sediment interventions. • Limited long-term budget availability threatens continuity of adaptive systems. • Political instability affects the consistency of permitting and monitoring standards. • Complex governance and stakeholder diversity complicate alignment of management strategies.

Artisanal fishing in the Ebro Delta.
© M. Cebolla

EBRO ACTION 12i: Promote and increase engagement with multiple stakeholder groups by tracking the accomplishment and advancement of project goals (sharing progress, disseminating NbS cases, etc.).

Although REST-COAST has demonstrated that artificial beach sand nourishment does not contribute to the decarbonization of the coast (when compared to river sediment bypass and transportation options) as initially envisioned by the project, such interventions are currently being implemented by the central government, with support from the regional government, in response to the demands of a highly influential stakeholder who also participates in the Ebro Delta CORE-PLAT. The biodiversity and ecosystem service benefits of these actions remain highly questionable. Therefore, ensuring transparency through long-term monitoring and open dissemination of results is essential. The action aims to establish a transparent, participatory monitoring framework to track restoration performance and adaptation goals, especially those related to sediment transport and deposition. This action also includes the use of the CORE-PLAT to establish a common framework among stakeholders for coordinated adaptation that supports monitoring of sediment-based restoration measures (like beach nourishment) by linking progress to wider adaptive sediment planning. This action strengthens sediment governance by embedding accountability and performance-tracking mechanisms in participatory forums. It promotes transparency on the status of sediment-based interventions (e.g., beach nourishment, dam bypass plans) and enables multi-level actors to evaluate progress, identify obstacles, and co-develop solutions. CORE-PLAT has already been used under REST-COAST to share updates and scientific outputs related to Bombita beach restoration. This action seeks to consolidate these practices and expand them into a monitoring-accountability framework. This reflects REST-COAST's integrated approach linking science, stakeholder engagement, and institutional learning to sediment governance. It builds on the co-design ethos embedded in the project's work on nature-based coastal protection strategies.

GOVERNANCE INDICATOR: **ACCOUNTABILITY**

ENABLERS	BARRIERS
• Existing monitoring systems led by REST-COAST partners; local interest in maintaining accountability mechanisms. • CORE-PLAT provides a venue for performance tracking and participatory review. • Stakeholder synergies and recognition of shared indicators enhance coordination potential. • Institutional memory from ongoing monitoring efforts (e.g., Bombita) helps maintain momentum. • Prior multi-level coordination structures provide scaffolding for alignment.	• Current monitoring efforts are not harmonised or mandated at the governance level; they remain dependent on short-term funding cycles. • Limited resources restrict continuity. • Complex stakeholder dynamics and political shifts reduce consistency in data use and reporting. • Fragmentation of monitoring responsibilities leads to duplication or gaps in results-sharing, impeding collective review.

Cattle egret (*Bubulcus ibis*).
CC-by-2.0 Krista Lundgren/ USFWS (c)

2.3.3 Adaptation Measure Category 5: Climate-Resilient Food Production

This category includes governance actions that promote sustainable, adaptive, and resilient practices in agricultural and aquacultural systems that coexist with (or contribute to) ecosystem restoration. In the Ebro Delta, where traditional rice farming and aquaculture are core uses, governance improvements are essential to enable regenerative farming, reduce vulnerability to sea level rise and salinisation, and harmonise productive and ecological functions within the broader coastal landscape. In particular, sedimentation-based restoration that supports rising ground levels plays a vital role in maintaining the viability of rice cultivation. The integration of nature-based solutions (NbS) and sediment redistribution into agri-environmental benefits is a key feature of this governance transformation.

EBRO ACTION 6i: Develop governance guidelines that ensure the integration of knowledge and inputs from a variety of sources into restoration upscaling efforts.

This action aims to institutionalise participatory knowledge integration into the governance framework guiding restoration-compatible land use, including rice farming and aquaculture. This could be critical to supporting farmer inclusion and traditional practices as part of the resilient food production strategy. The objective is to create structured pathways for including farmer knowledge, ecological science, and innovation in decision-making. While still at an early stage, this action builds on REST-COAST's facilitation of cross-sectoral learning platforms, particularly those intersecting environmental and agricultural management. It is closely linked to the CORE-PLAT's future role in shaping regional NbS policy alignment. The action supports the transformation of the governance landscape to one where NbS and adaptive land use are co-designed by a plurality of actors, enabling transitions toward resilience-oriented food systems.

GOVERNANCE INDICATOR: **GOVERNANCE STRUCTURE**

ENABLERS	BARRIERS
• Existing agreement among stakeholders to promote participatory integration of knowledge; goodwill and experience from previous co-creation sessions. • REST-COAST has provided momentum and structure. • Institutional frameworks exist to support guideline development, and existing platforms (e.g., CORE-PLAT) can be leveraged.	• Action not yet prioritised; unclear institutional ownership for long-term guideline implementation. • Limited resources and dependence on project momentum pose challenges. • Political instability may deprioritise integration efforts. • Stakeholder diversity adds complexity to achieving consensus on guidance structure.

EBRO ACTION 7i, 7ii: Ensure that CORE-PLAT members and restoration stakeholders co-create actions across governance levels. Improve coordination and consensus to identify clearer pathways for decision-making. Define stakeholder expectations and material priorities.

This action reinforces vertical coordination among governance actors involved in food system planning, from national agricultural policy to local rice cooperative practices, to enable strategic alignment among decision-makers across scales to support the adoption of restoration-compatible agricultural and aquacultural practices. In the context of the Delta, where rice farming is both economically and ecologically relevant, this action aims to clarify roles, align decision-making levels, and strengthen planning frameworks that integrate climate adaptation and restoration into productive land uses. This action is part of the effort to transform CORE-PLAT into a multi-level governance tool that includes provincial agricultural actors, protected area authorities, and environmental NGOs. Restoration pathways are discussed in tandem with productive land-use scenarios. By integrating food production priorities into restoration governance discussions, this action helps move NbS implementation beyond ecological enclaves into the productive matrix of the Delta.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• Shared recognition of the need to integrate food system resilience with restoration goals; existing inter-institutional dialogues initiated by REST-COAST. • CORE-PLAT serves as a coordination hub across governance levels. • Strong multi-level collaboration experience exists in the Delta context. • Support for stakeholder-driven planning is high, and agricultural institutions show interest in policy alignment.	• Institutional fatigue and risk of stakeholder disengagement; political turnover has disrupted momentum in multi-level coordination. • Complex governance and varying capacities among actors slow down decision-making. • Previous efforts have not always produced actionable results, leading to reduced confidence. • Misaligned timings between agricultural and environmental sectors reduce synchronisation.

Mallard (*Anas platyrhynchos*).

EBRO ACTION 11: Promote knowledge sharing, diversity of knowledge, cultures, and institutions about restoration approaches and their feasibility in the context of REST-COAST. Disseminate successful business cases related to NbS and governance to raise awareness.

This action promotes social learning and institutional exchange around restoration-compatible food systems, including regenerative rice farming and sustainable aquaculture. The dissemination of business cases and NbS examples aims to increase stakeholder confidence and demonstrate the viability of food production systems that align with ecosystem restoration goals. The objective of this action is to empower diverse actors in the food system (farmers, cooperatives, technical experts) to participate in shared knowledge production, increasing adoption of NbS-compatible production methods. Led in part by EURECAT, this action ties into broader planning efforts on green infrastructure and eco-compatible development in the Delta. Initiatives include knowledge co-production workshops and local stakeholder dialogues to align food production with resilience and biodiversity outcomes. This action builds on the project's emphasis on nature-based, multifunctional landscapes. The pilot experience highlights that strengthening the visibility of regenerative economic models can shift perceptions and build governance support for upscaling these practices.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• EURECAT's leadership in harmonising knowledge integration across the pilot; regional planning interest in linking NbS with productive landscapes. • Strong stakeholder synergies and support for collaborative learning enhance uptake. • Existing co-creation platforms provide a knowledge base. • Institutional frameworks allow space for demonstration projects on regenerative agriculture and aquaculture.	• Co-creation spaces exist but are fragmented; difficulties remain in reaching consensus across cultural and institutional silos. • Diverse narratives hinder convergence. • Political instability affects policy uptake. • Limited long-term funding and uneven capacity across actors limit consistent learning and dissemination of lessons.

2.3.4 Remaining Governance Actions: Project Implementation and Governance Systemic Transformation

Actions listed below mostly include clarifying governance roles, improving policy coherence, building inclusive platforms, and establishing strategic, adaptive roadmaps—all of which are critical to enabling the effective delivery and sustainability of nature-based solutions across the Delta.

EBRO ACTION 1: Improve informed decision-making and reach a higher consensus on restoration approaches, given that governance structures are complex, not clear and overlapping at times.

This action aims to clarify roles and mandates among national, subnational, and local actors to streamline decision-making and support effective implementation of restoration actions. The current overlap in institutional competencies hinders coordinated action on sediment, wetland, and coastal adaptation measures. Greater consensus is needed to consolidate a unified governance direction.

EBRO ACTION 2: In spite of the background in the area to capture and share local knowledge, there is a need for diversity of knowledge, cultures, and institutions.

This action supports the inclusion of a wider range of perspectives—including local farmers, fishers, NGOs, and community groups—in shaping the governance of restoration. Recognising and incorporating this diversity strengthens local ownership of adaptive measures and aligns decisions with social-ecological realities on the ground.

EBRO ACTION 3: Create a strategic view of the pilot area and its management practices.

This action seeks to establish a shared long-term vision for the Ebro Delta that integrates restoration, land use, and climate adaptation. A coherent strategic outlook is essential to guide the implementation of NbS and ensure alignment among fragmented project-based interventions, including future coastal wetland and dune restoration plans.

EBRO ACTION 4: Create a harmonisation of measures across different policy documents relevant for the site.

By aligning sectoral policies—such as flood risk management, biodiversity conservation, and agriculture—this action reduces contradictions and gaps that currently undermine restoration implementation. Harmonisation is a key step toward enabling large-scale, cross-sectoral adaptation responses in the Delta.

EBRO ACTION 8: Align traditional knowledge with restoration and resilience in the Ebro Delta area by integrating supporting approaches in local planning and policies (e.g., green infrastructure and ecotourism planning).

This action strengthens the legitimacy and implementation viability of wetland restoration through inclusive planning and aligns with NbS upscaling pathways (EURECAT already has played a leading role in the development of green infrastructure planning that supports this action). This initiative also contributes to co-creation and territorial integration of NbS into spatial planning frameworks. The action enables inclusion of soft restoration strategies and local ecosystem-based adaptation approaches in wetlands and lagoon restoration with the objective of integrating historically rooted land-use knowledge (e.g., agriculture, fishing, water management) into formal policy frameworks and ecological restoration agendas, creating stronger links between community practice and institutional planning. Led by EURECAT, the initiative is supported by harmonised green infrastructure plans and collaborative efforts among stakeholders, NGOs, and REST-COAST partners. However, it faces challenges from fragmented co-creation processes, political instability, misalignment over time with the REST-COAST scope of the project and diverging stakeholder narratives that hinder consensus and continuity.

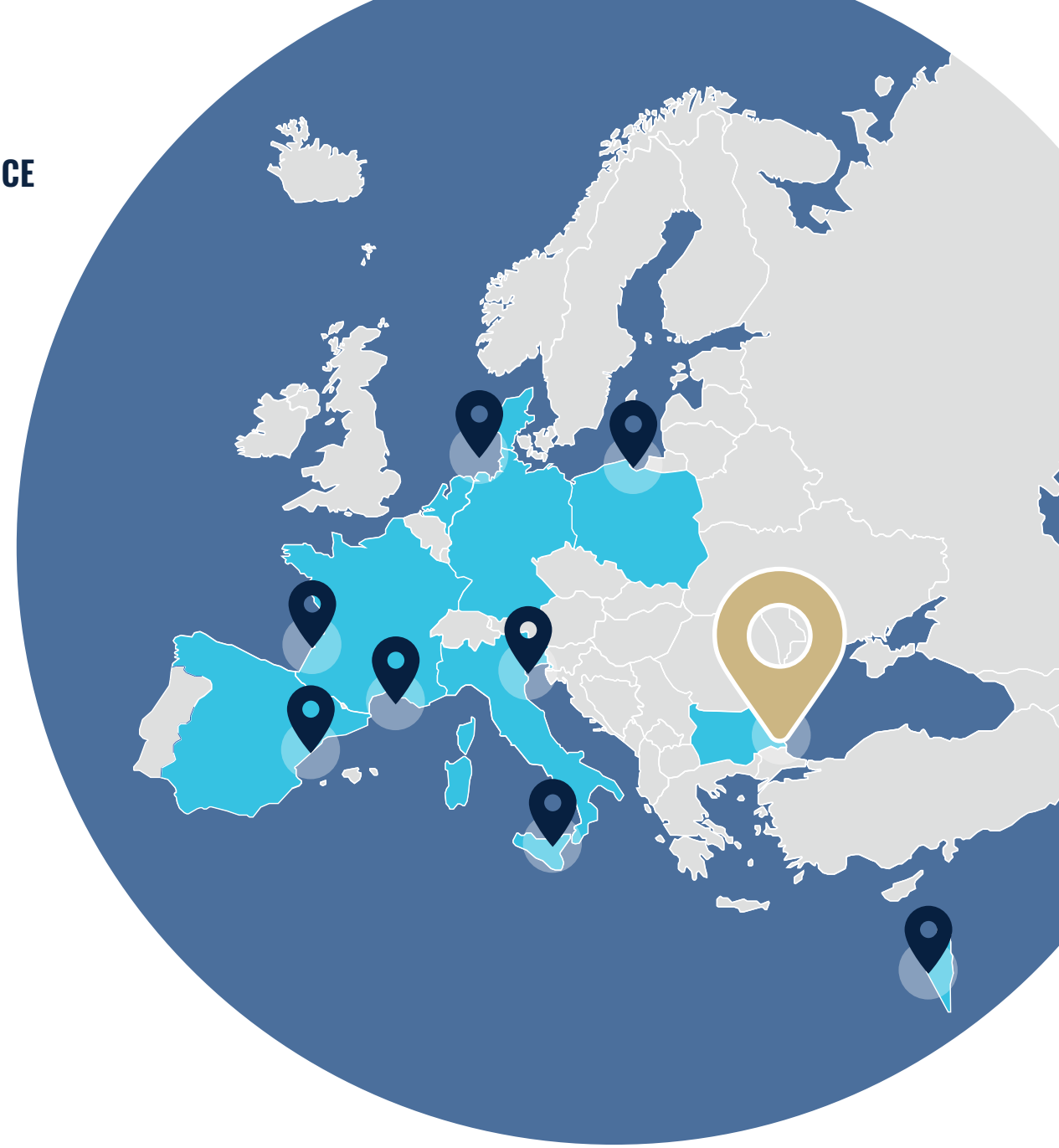
EBRO ACTION 13: Update governance improvement planning and strategic vision, together with the management schemes as needed.

This action reinforces adaptive governance by promoting regular reviews and updates of strategic restoration planning. It supports the institutionalisation of learning processes necessary for tracking progress and adjusting governance arrangements in line with implementation needs and changing environmental conditions.

EBRO ACTION 14: Use REST-COAST project structures as informal forums to promote governance improvements, networking, and awareness-raising (e.g., Alfacada as a soft restoration success).

This action acknowledges the importance of informal governance arenas—like CORE-PLAT—as trusted spaces for collaboration and dialogue. These forums help build the relationships and shared understandings necessary to gradually strengthen governance capacity for restoration upscaling.

PILOT SITE GOVERNANCE BRIEFS



REST-COAST

3. FOROS BAY

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With collaboration from pilot site teams

July 2025

Funded by the European Union

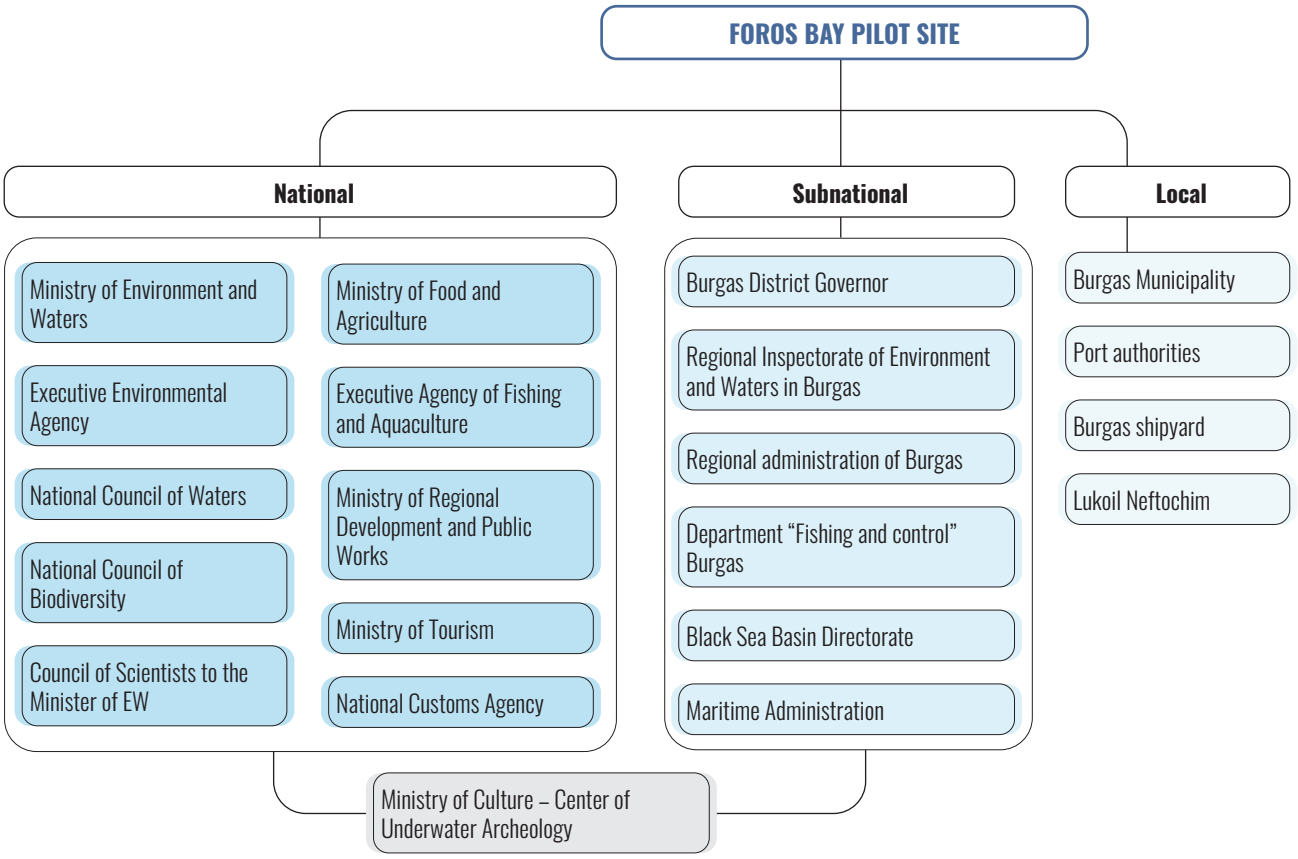
3. FOROS BAY

The stakeholder map in the Foros Bay Pilot Site illustrates a complex network of actors operating at national, subnational, and local levels (Figure 3.1). National-level actors provide oversight in areas such as environmental protection, fisheries, agriculture, tourism, and infrastructure, contributing to strategic planning and regulation. At subnational level, different bodies handle the implementation and monitoring of sectoral policies, particularly related to water and marine resources. Local stakeholders include port and industrial operators, all of whom are directly connected to and impacted by coastal activities. This multi-level structure highlights the importance of coordination and clear communication to ensure effective coastal management and restoration efforts.

3.1 Pilot-wide governance framework: State of play and analysis of roadmapped actions

The progress of roadmap implementation in the Foros Bay Pilot Site highlights the structural and institutional constraints that limit the site's governance transformation potential. The Foros Bay Pilot Site has been assigned a total of **18 governance road-mapped strategic actions**, of which approximately 55% are either initiated, ongoing, or nearing completion, reflecting moderate progress on foundational governance priorities despite systemic and institutional limitations.

Figure 3.1. **Stakeholder map for the Foros Bay Pilot Site.**



Regarding the governance criteria and indicators, the Foros Bay Pilot Site has shown no change across all nine governance criteria between 2022 and 2024. This static performance is reflected in the fact that the overall average governance score remains at the same rate (66%), suggesting a stall in governance transformation efforts during the two-year period. As shown in Figure 3.2 and Table 3.1, key indicators such as "*Strategic Vision, Learning and Direction*" (80%), "*Devolution*" (85%), and "*Diversity of Knowledge, Cultures, and Institutions*" (90%) remain high but unchanged, reflecting a solid foundation in vision and cross-sectoral relationships, though without measurable improvements. Likewise, mid-range performance areas such as "*Governance Structure and Legal Alignment*" (47%) and "*Inclusive and Effective Decision Making*" (58%) also remain static, highlighting persistent constraints in achieving systemic change or institutional coordination.

The lack of variation across indicators (Table 3.1 and Figure 3.1) is notable and speaks to the specific context of Foros Bay, where the capacity to influence broader institutional reforms may be limited. Notably, "*Grievance and Conflict Resolution*" remains the lowest-performing criterion at 30%, with no progress registered since 2022. This underscores the continued risk of social tensions—particularly with stakeholders like local fishermen—and a lack of mechanisms to mediate potential disputes. While the Pilot, mainly the Institute of Oceanology of the Bulgarian Academy of Sciences (IO-BAS) as key project partner, has built strong communication with NGOs and scientific institutions, this has not yet translated into broader institutional changes or participatory governance improvements. As restoration demonstrations move forward, revisiting these criteria may offer renewed opportunities for improvement.

Upon reviewing the current implementation status, over half of the actions remain at the "Not Started" or "Not Feasible" stages although a few are classified as "Initiated" or "Ongoing" (Figure 3.2). The primary focus thus far has been on initiating communication strategies and obtaining the necessary permits for a demonstrative seagrass restoration project, which is intended to catalyse institutional awareness and stakeholder engagement. However, significant challenges persist in operationalising these efforts and advancing from awareness-raising to structural change, particularly regarding governance alignment and accountability.

Table 3.1. Results from governance self-assessment at Foros Bay Pilot Site by criteria in 2022 and 2024.

GOVERNANCE CRITERIA	Performance Rates		Variation from 2022 to 2024
	2024	2022	
1. Governance Structure and Legal Alignment	47%	47%	0%
2. Inclusive and Effective Decision-Making	58%	58%	0%
3. Recognition Of Tenure Rights	90%	90%	0%
4. Diversity Of Knowledge, Cultures and Institutions	90%	90%	0%
5. Devolution	85%	85%	0%
6. Strategic Vision, Learning and Direction	80%	80%	0%
7. Coordination and Coherence	67%	67%	0%
8. Accountability	50%	50%	0%
9. Grievance and Conflict Resolution	30%	30%	0%
Average Performance	**66%**	**66%**	**0%**

Figure 3.1. Governance Indicators/Criteria visualization. Comparison between 2022 and 2024 at Foros Bay Pilot Site.

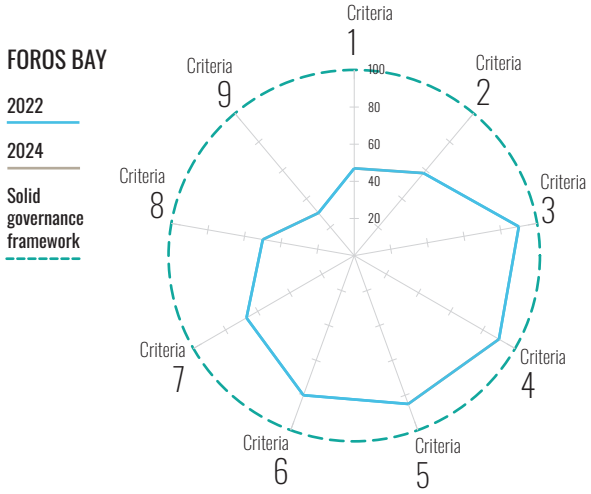
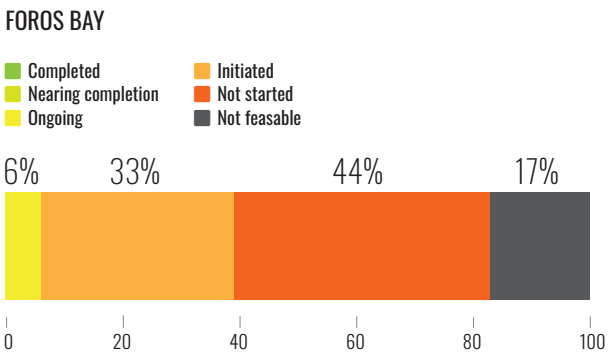


Figure 3.2. Progress on implementation of Roadmap actions in Foros Bay Pilot Site.



Several actions remain stalled due to barriers outside the control of the Pilot, especially those dependent on institutional reform or systemic governance changes. Notably, the implementation of legislative and structural reforms (Actions 1, 9, and 10i–ii) were classified as "Not Feasible," while others related to stakeholder coordination, participatory mechanisms, and integration of restoration goals into regional planning have not yet been initiated (Actions 3, 5, 8, and 12). The lack of management plans for Natura 2000 areas within the site also continues to hinder more systemic engagement on restoration governance.

Nonetheless, the Pilot has initiated a few foundational activities, including communication campaigns and the CORE-PLAT setup, which signal potential momentum if institutional receptiveness increases. Ultimately, the roadmap highlights the need for gradual, confidence-building approaches to unlock deeper governance change, focusing first on low-resistance actions that can serve as tipping points for more ambitious interventions.

In Foros Bay, while NGOs and scientific actors are actively involved and maintain good communication, many local authorities and economic actors—including fishermen and municipal representatives—exhibit low levels of interest or engagement. This poses a potential risk to the uptake and co-development of restoration actions. The CORE-PLAT has been formally established and includes a network of relevant actors, but its functionality and reach are still developing. The platform is yet to become a fully effective space for co-creation and coordination. Further dissemination efforts, particularly after the completion of the seagrass restoration activities, will be critical to broadening participation and addressing initial resistance from sectors still leaning towards grey infrastructure approaches. Without reinforcing the CORE-PLAT's convening power and ensuring consistent stakeholder involvement, progress may remain limited to isolated efforts rather than systemic governance transformation.

The review of roadmapped actions reveals a modest degree of progress across several areas, particularly those tied to foundational tasks such as raising awareness, piloting nature-based solutions, and initiating engagement activities. **Enablers** for progress (Table 3.2.) include the successful acquisition of necessary permits for seagrass restoration activities and a strong line of communication between scientific experts and local NGOs. These elements have allowed for concrete restoration work to begin, serving as a tangible example of NbS in action and as a catalyst for broader stakeholder awareness. Additionally, high public awareness about the importance of signalling irregularities and the presence of active NGOs have supported actions related to participatory control and early-stage coordination mechanisms. Good communication strategies, such as public event presentations and targeted outreach around the restoration demonstration, have further supported awareness and early collaboration.

Despite these positive developments, several systemic **barriers** (Table 3.2.) continue to hinder more substantial progress. These include a lack of coordination and communication between relevant institutions, low administrative capacity, insufficient funding, and a general passivity among public authorities. Barriers are also reinforced by an imbalanced power dynamic that favours private interests over public and ecological priorities. Notably, the absence of management plans for Natura 2000 sites, conflicting business interests, and a lack of clearly defined accountability mechanisms further complicate long-term governance transformation. The scientific community is often excluded from coordination procedures, and there is minimal flexibility or capacity for control beyond rigid administrative checks. Importantly, limited engagement from key stakeholders, particularly local authorities and actors outside the NGO sector, continues to limit the effectiveness and reach of many roadmap actions.

Heavily modified Foros Bay area by a stony barrier.

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Table 3.2. **Enablers and Barriers identified in Foros Bay through the Roadmap implementation.**

ENABLERS	BARRIERS
• **Scientific Leadership and Expertise:** Strong involvement of IO-BAS and scientific experts has led to high-quality technical implementation, especially in seagrass restoration and monitoring design.	• **Institutional Fragmentation and Inertia:** Subnational/local authorities face low administrative capacity, insufficient funding, and poor coordination, with limited flexibility and initiative for strategic reforms.
• **NGO Engagement:** Environmental NGOs are active, well-connected with scientific teams, and help raise awareness and facilitate community outreach and dissemination.	• **Dominance of Private Interests:** Governance processes often suffer from an imbalance of power, with private or municipal interests outweighing ecological or community-based considerations.
• **Permitting and Legal Readiness:** Restoration permits have been issued, and necessary institutional authorisations are in place, enabling Pilot NbS interventions to begin.	• **Low Engagement of Key Stakeholders:** Aside from NGOs and scientific actors, key groups such as fishermen, local authorities, and private sector actors show low engagement or resistance to NbS approaches.
• **Public Awareness and Civic Willingness:** There is relatively good public awareness regarding the importance of environmental protection, especially around reporting irregularities and supporting conservation goals.	• **Lack of Management Plans and Strategic Vision:** Absence of management plans for Natura 2000 areas and no clearly articulated broader vision for restoration hinders long-term planning and prioritisation.
• **Demonstration Effects:** The seagrass restoration acts as a live demonstration of NbS potential and is expected to be a powerful enabler for further stakeholder engagement and policy dialogue.	• **Weak Accountability Mechanisms:** Limited monitoring, vague enforcement protocols, and reliance on rigid administrative rules result in unclear or ineffective accountability structures.
	• **Limited Influence Over Governance Framework:** The Pilot lacks authority to drive structural governance reforms and can only influence communication and coordination within their scope of action.
	• **Lack of integration of science-based approaches in national climate adaptation planning:** The absence of a coherent, evidence-based national climate adaptation strategy, particularly one that incorporates Nature-based Solutions, limits the ability of local actors to align restoration goals with broader policy frameworks. This gap hampers long-term planning, restricts funding opportunities tied to national priorities, and weakens the institutional legitimacy of pilot-scale measures.
	• **Competing land and resource uses:** Conflicting demands from tourism, fisheries, and archaeological activities introduce tensions that complicate coherent site management. These overlapping interests challenge the implementation of restoration actions and NbS by increasing pressure on natural assets and requiring careful negotiation to balance conservation priorities with economic and cultural uses.

3.2 Recommendations for strengthening progress on Roadmapped Actions

The Foros Bay Pilot Site faces a relatively slow progression towards a governance transformation, as reflected in the large proportion of roadmap actions that remain "Not Started" or are progressing slowly. This limited progress may stem from structural constraints such as institutional fragmentation, low administrative capacity at regional and municipal levels, and a lack of formalised cooperation mechanisms between key governance actors. Moreover, decision-making continues to be influenced by private sector interests, which often dominate over broader public or environmental priorities, particularly in coastal zone management. Above all, political instability and frequent change of power creates risk of discontinuity of restoration efforts and NbS implementation in general.

Additionally, the highly centralised governance structure in the country creates a funding dynamic where proximity to central government often determines the availability of restoration financing. This tends to benefit actors or regions with stronger political connections, contributing to a regional imbalance in funding opportunities. In the case of Foros Bay, the dominance of public funding mechanisms—often in favour of private interests—adds another layer of complexity. This structural issue, coupled with political instability and frequent turnover at the national level, threatens the continuity of restoration initiatives and long-term governance reforms.

Governance barriers also include low stakeholder engagement, limited awareness of NbS, and the absence of accountability mechanisms. The lack of clear mandates and the absence of Natura 2000 management plans further highlight governance incoherence. Although a seagrass restoration pilot offers a promising example of NbS, its potential to build wider support has yet to be fully realised. Despite these constraints, there are enablers to support governance transformation. These include strong collaboration between NGOs and scientific institutions, existing legal authorisations for restoration, and the demonstration effect of completed actions. The CORE-PLAT platform presents a strategic opportunity to formalise cross-sectoral dialogue and raise the profile of long-term restoration goals.

To fully unlock progress, the Foros Bay Pilot Site will need targeted efforts to address coordination gaps, formalise stakeholder collaboration, and build policy support for scaling NbS. Establishing clear mandates for restoration actors, linking scientific evidence to policy influence, and investing in capacity-building among local authorities are essential next steps. These actions are crucial not only to advance currently stalled roadmap but also to ensure that early achievements under the REST-COAST initiative translate into lasting governance impact.

3.3 Analysis of Governance actions at Adaptation Measure level

3.3.1 Adaptation Measure Category 1: (Coastal) Wetland Restoration

This category includes governance actions that directly support or enable the **restoration of Zostera noltei seagrass meadows** in Foros Bay. The Pilot's demonstrative restoration is designed to improve coastal ecosystem functions and deliver nature-based solutions for resilience and biodiversity. Governance measures in this category target stakeholder awareness, conflict mitigation, institutional collaboration, and knowledge integration—key for building legitimacy and operational capacity for seagrass restoration under socio-political constrained conditions.

Landscape seascape.

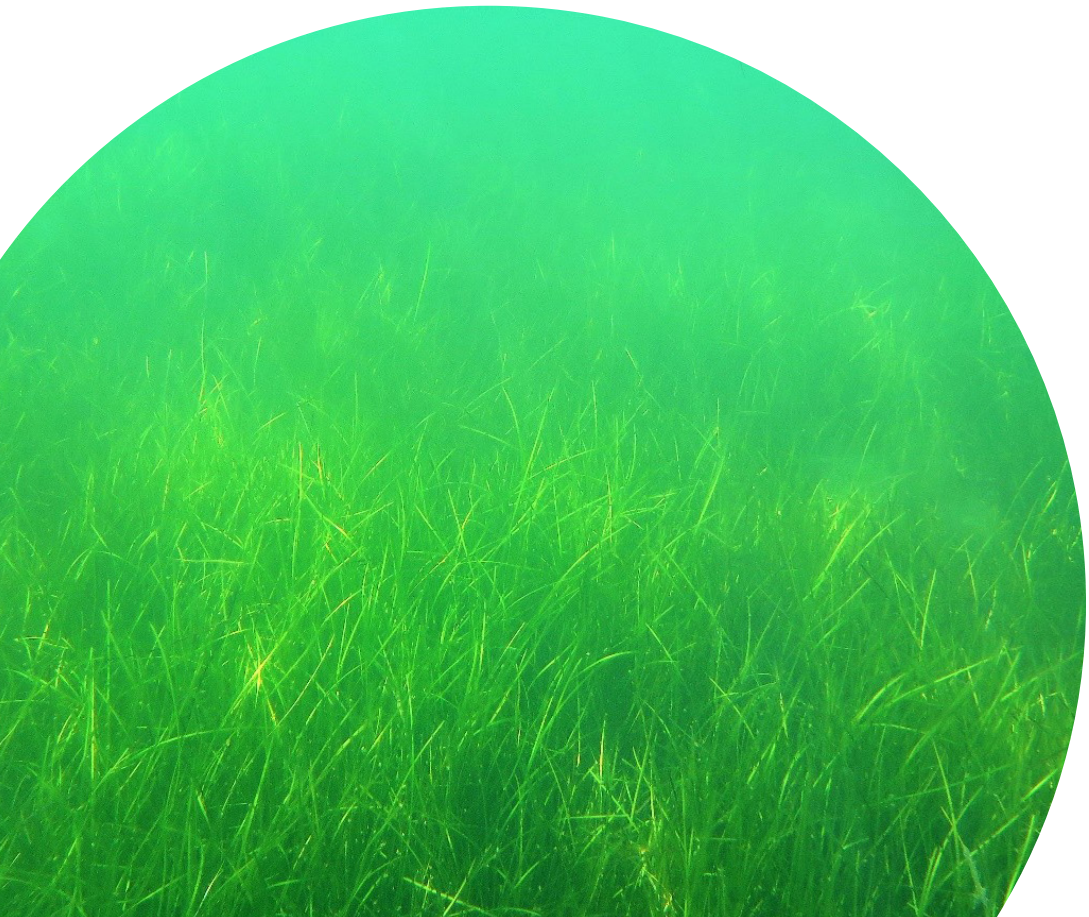
© eng. Bogdan Prodanov, PhD

FOROS BAY ACTION 2: Enhance inclusive and effective decision-making by addressing the lack of balance in power dynamics between multi-level and multi-stakeholder decision-making processes, which currently favors private interests. The action should also focus on improving the knowledge, capacity, and experience of decision-makers, practitioners, and the scientific community regarding Nature-based Solutions (NbS).

For seagrass restoration in Foros Bay, inclusive governance is essential for institutional recognition and stakeholder legitimacy. This action addresses the entrenched power imbalances that favour private sector dominance in coastal zone decisions, undermining efforts to mainstream NbS. The IO-BAS has taken a lead in communicating with authorities, but broader political and administrative engagement is limited. The Pilot serves as a catalyst to raise awareness and build political will; however broader changes require institutional alignment and funding that fall outside the project's scope. This institutional fragmentation is further compounded by the lack of a national, science-based climate adaptation framework—particularly one integrating Nature-based Solutions—which restricts alignment between site-level restoration efforts and higher-level policy agendas.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• After completion of the seagrass restoration, regional/ local authorities and communities will be informed of the results as a model NbS intervention.	• Non-coherent attitudes and limited capacity among relevant management bodies hinder full stakeholder involvement and shared governance. • IO-BAS lacks authority to address systemic governance reform beyond project-specific activities. • The absence of an effective, science-based national climate adaptation strategy—including the integration of Nature-based Solutions (NbS)—hampers alignment between local restoration actions and higher-level policy priorities, limiting institutional support and long-term planning coherence.



Typical seagrass ecosystem.
© Elitsa Hineva, PhD

FOROS BAY ACTION 3: Foster Knowledge Exchange and Capacity Building through Community Engagement by addressing the potential lack of stakeholder awareness and support for NbS and the goals of restoration actions. The action should also focus on improving communication and coordination between institutions and other actors, such as scientists, NGOs, and local communities.

This action promotes cross-sectoral knowledge integration, a critical pillar for securing support for seagrass restoration. The Foros Bay governance baseline reveals that scientific-NGO relations are strong, but awareness among local stakeholders remains low, especially regarding the value of NbS in contrast to traditional grey infrastructure.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• The scientific team maintains good communication with local NGOs. • Results from the restoration will be used to inform regional authorities and community actors about the effectiveness of NbS.	• Current stakeholder awareness and support for NbS remains limited. Capacity-building efforts must be scaled beyond academic and NGO actors to broader civil society to shift the narrative and increase restoration buy-in. • Institutional frameworks are weak, and IO-BAS has limited reach beyond its own coordination responsibilities. • Political instability and the frequent change of government weaken institutional memory and disrupt continuity of restoration efforts. While communication with subnational/local authorities is more stable, particularly around specific adaptation measures (e.g., construction of a secondary channel and connectivity restoration), the broader enabling environment remains volatile.

FOROS BAY ACTION 5: Improve grievance and conflict resolution mechanisms by promoting a greater balance between private interests and public/community interests in the decision-making process and taking proactive measures to mitigate potential conflicts with local fishermen and raise public awareness about activities related to Lake Vaya-Foros Bay connectivity improvements.

This action supports social acceptance of seagrass restoration by proactively addressing conflict risks, particularly from stakeholders favouring traditional grey infrastructure (e.g., fishermen, municipalities). As connectivity works and NbS progress, conflict mediation becomes essential to safeguard implementation and avoid project delays.

GOVERNANCE INDICATOR: **GRIEVANCE AND CONFLICT RESOLUTION**

ENABLERS	BARRIERS
• Communication channels exist between scientific actors and NGOs. • The restoration actions will serve as a demonstration to stimulate dialogue and alignment.	• Persistent resistance from fishing groups and private interests still preferring grey infrastructure. Raising awareness and promoting co-benefits of NbS for fisheries and ecosystem health will be critical to defusing conflict and encouraging broad-based support. • IO-BAS lacks authority to resolve systemic political and sectoral disputes. • Beyond fisheries, overlapping land uses including tourism development and archaeological interests also challenge consistent application of restoration goals at the site level.

FOROS BAY ACTION 7i, 7ii, 7iii, 7iv: Engage with stakeholders more supportive towards the project to raise awareness regarding the use of NbS, based on restoration results. Enhance stakeholder collaboration via CORE-PLAT and dissemination of restoration outcomes.

This action focuses on amplifying stakeholder collaboration and raising awareness through the restoration demonstration. The Foros Bay CORE-PLAT is operational but underutilised; scaling its impact is essential to build participatory capacity and long-term institutional support for seagrass recovery.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• Contacts with key stakeholders are already established. • Seagrass restoration outcomes will be shared with local authorities and communities. • CORE-PLAT exists and is being used for presentations and coordination.	• Low interest and engagement from local authorities and actors (except NGOs). • Additional effort is needed to activate the full potential of CORE-PLAT as a collaborative governance mechanism. CORE-PLAT serves as a soft governance arena to build trust and support but needs further mobilisation to facilitate true co-production of restoration agendas.

FOROS BAY ACTION 11i, 11ii, 11iii, 11iv: Promote and increase stakeholder engagement. Improve the knowledge base and experience of relevant groups/actors involved in the restoration activities on NbS, serving as a starting point for future projects to play a role of capacity-building mechanisms.

This action aims to establish widespread stakeholder awareness and engagement through outreach, mapping, and educational activities. In Foros Bay, where the societal understanding of NbS remains limited, this action reinforces legitimacy and lays the groundwork for scaling seagrass restoration beyond the current pilot.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• Multiple presentations and outreach events conducted. • Restoration demonstration shared through RC communication channels. • Seagrass permit secured and experimental works underway.	• This action is vital to create a critical mass of support for future restoration phases and to ensure long-term knowledge retention in the community. An additional need to inform the public about the future reed management and canal maintenance (Lake Vaya–Foros Bay) was identified but currently deemed unfeasible.

3.3.2 Adaptation Measure Category 3: Restoring Hydraulic Connectivity

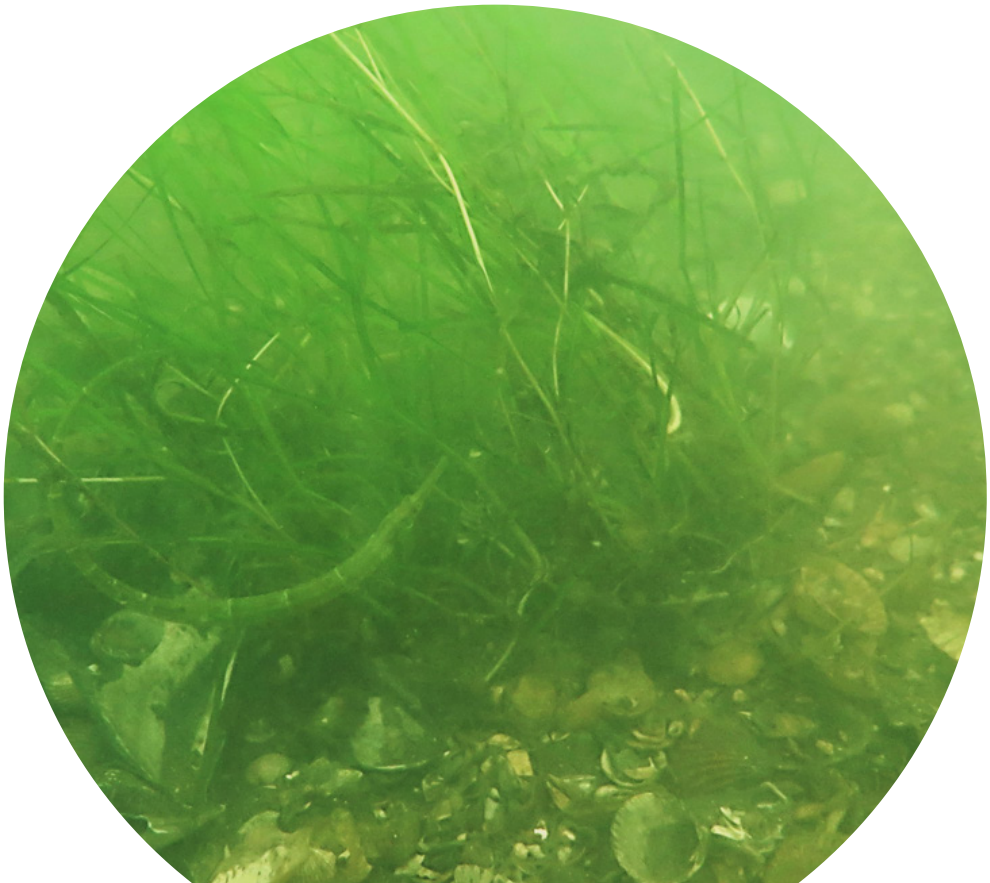
This category refers to governance actions associated with restoring the hydrological link between Foros Bay and Lake Vaya. The reconnection aims to improve water quality, ecological health, and the functionality of wetland-coastal ecosystems by re-establishing natural exchange between the brackish lake and marine environments. Although implementation of the connectivity infrastructure (e.g., canal clearing and reed vegetation management) is currently beyond the direct scope of the REST-COAST project, governance actions remain essential to ensure long-term stakeholder engagement, compliance, and oversight. These actions support community participation, legitimacy of management interventions, and improved adaptive oversight.

FOROS BAY ACTION 6: Implement the new NATURA 2000 management model at the national level by activating citizens' participation in the control process, e.g., signalling the authorities in cases of irregularities.

This action proposes enhancing public oversight mechanisms through citizen-based monitoring and reporting, especially relevant in the Natura 2000 sites overlapping the Foros Bay–Lake Vaya corridor. It serves to improve legitimacy and transparency in hydraulic restoration efforts, where irregularities or illegal activities (e.g., unregulated fishing, pollution) may compromise ecosystem recovery. Public involvement in oversight is critical to compensate for low administrative capacity in the region.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• The Pilot Site benefits from relatively high public awareness about the need to inform authorities of environmental irregularities. • Local NGOs are active and can support citizen engagement.	• This action builds the foundation for co-responsibility in hydraulic management, but its long-term efficacy depends on finalising and operationalising site-specific management plans. • Conflicting business interests have delayed the formalisation of protection and governance measures in the site.



High turbidity of the area due to eutrophication of the lakes, discharging into the bay.
© eng. Anton Krastev

3.3.3 Remaining Governance Actions: Project Implementation and Governance Systemic Transformation

In the context of Foros Bay, these remaining actions address legal alignment, accountability, coordination, funding structures, and the integration of restoration priorities into formalised management frameworks.

FOROS BAY ACTION 1: Enhance the governance structure by improving communication and coordination between institutions and stakeholders, improving relevant legislation concerning restoration, and transforming the governance model of the NATURA 2000 network. *(Currently marked as Not Feasible)*

This action seeks to reform the governance landscape by addressing poor coordination, legal misalignment, and weak administrative capacity, particularly among regional and local authorities. Although currently unfeasible, it identifies the systemic barriers undermining long-term restoration management in Foros Bay, including inadequate funding and institutional inertia.

FOROS BAY ACTION 4: Control of issued permits and their underlying conditions for activities in the coastal zone by the relevant authorities (e.g., regional inspection directorates).

This action addresses weaknesses in the permit control system for coastal activities, where oversight is largely administrative and not tied to ecological monitoring. While outside the direct scope of the REST-COAST team, the action underscores the importance of transparent, science-based permit compliance as a foundational aspect of effective restoration governance.

FOROS BAY ACTION 8: Seek support from sectoral actors for funding via joint initiatives showing economic benefits.

This action aims to overcome chronic financial constraints on restoration by proposing engagement with sectoral actors who could provide funding through mutually beneficial initiatives. It highlights the need to demonstrate the economic value of restoration to attract broader commitments beyond project-based support.

FOROS BAY ACTION 9: Advocate for legislation to mandate scientific involvement in coordination and reintroduction programs.

This action promotes long-term governance transformation by seeking legal requirements for science-policy integration in restoration processes. While not feasible under the current scope, it reflects an important systemic gap—namely the lack of formalised mechanisms ensuring scientific input into decision-making.

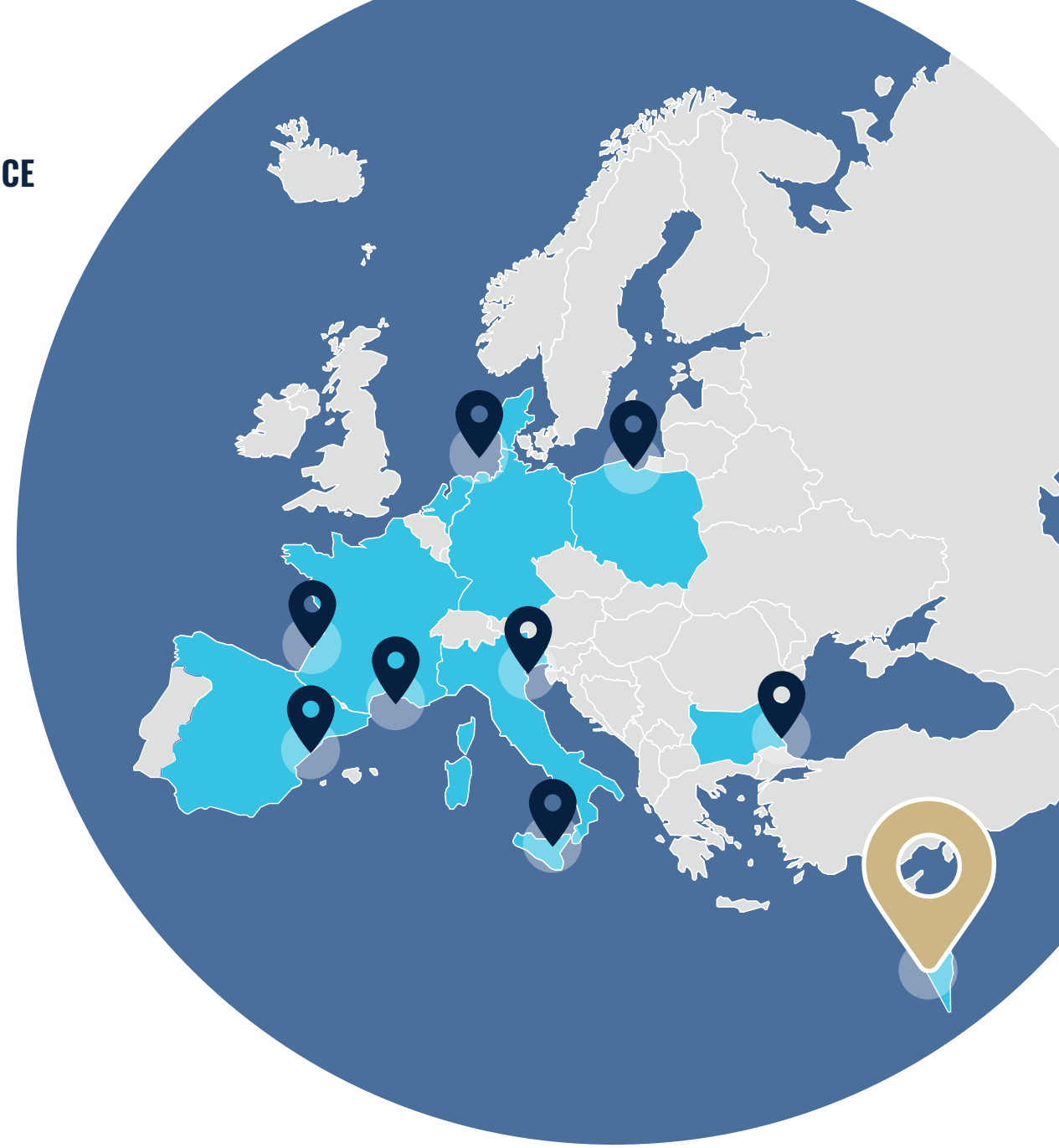
FOROS BAY ACTION 10i, 10ii: Define accountability measures and strengthen control mechanisms to prevent corruption.

This action focuses on institutional integrity by encouraging clear accountability structures in the governance of restoration projects. Although not currently actionable, it is seen as essential to ensuring transparency, public trust, and legitimacy in long-term project implementation and funding processes.

FOROS BAY ACTION 12: Integrate the identified governance reforms into the management plans for the Natura 2000 site, with regular review and updates.

This action aims to institutionalise governance improvements by embedding them into the official management frameworks of Natura 2000. Though not yet started, it is critical to sustaining restoration gains and scaling future interventions across protected areas in the region.

PILOT SITE GOVERNANCE BRIEFS



REST-COAST

4. NAHAL DALIA

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With collaboration from pilot site teams

July 2025

Funded by the European Union

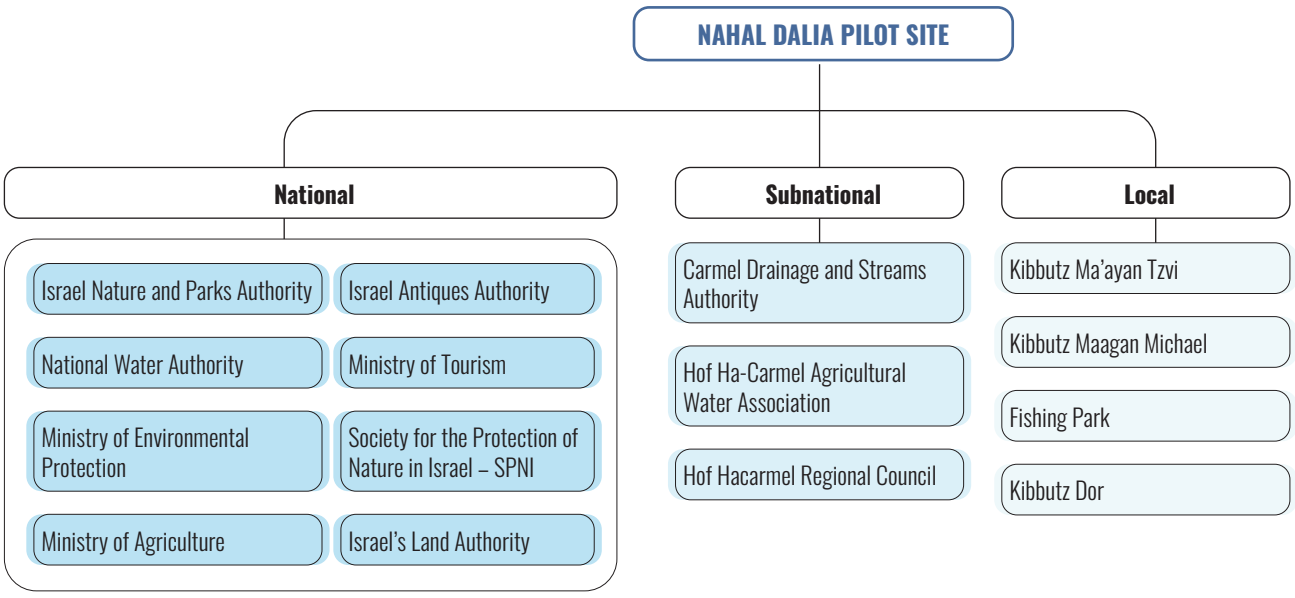
4. NAHAL DALIA

The Nahal Dalia Pilot Site has a multi-level governance structure involving national, subnational, and local actors (Figure 4.1.). The stakeholders map confirms that core actors include INPA, the Water Authority, Drainage Authority, Kibbutzim (Ma'ayan Tzvi and Maagan Michael), local government bodies, NGOs, and community members. At the national level, institutions are responsible for setting policies related to the environment, agriculture, water management, conservation, and land use. Subnational entities focus on regional water management and planning. At the local level, community groups and agricultural stakeholders are directly engaged in and impacted by restoration efforts. This governance setup underscores the need to coordinate interests and actions across all levels to ensure effective and sustainable restoration outcomes.

4.1 Pilot-wide governance framework: State of play and analysis of roadmapped actions

The governance transformation progress at the Nahal Dalia Pilot Site reveals significant strides since 2022, particularly in baseline readiness and stakeholder engagement. With a total of **12 governance road-mapped strategic actions** assigned to the site, nearly all have been at least initiated or are underway. This steady progress can be attributed to the early establishment of a solid governance foundation, particularly the experience and institutional capacity of the Israel Nature and Parks Authority (INPA) in leading planning and implementation. Adaptive management and flexible coordination have allowed the Pilot to maintain consistent momentum, even as key actions—such as stakeholder trust-building and financial cooperation—continue to evolve over time. This reflects strong momentum across several key governance priorities, even in the face of structural, regulatory, and coordination challenges. Notably, the Pilot Site has made progress in aligning stakeholders around a common vision, piloting technical solutions at a small scale, and strengthening coordination through a steering committee and thematic working groups. These efforts have helped to build credibility, trust, and problem-solving capacity across sectors, despite the site's modest financial and institutional resources.

Figure 4.1. Stakeholder map for the Nahal Dalia Pilot Site.



The Site's average governance criteria score has increased from 24% in 2022 to 60% in 2024 (Table 7 and Figure 4.2), which represents the largest overall improvement across all REST-COAST Pilot Sites. Gains were particularly substantial in the areas of "Grievance and Conflict Resolution" (60%), "Accountability" (50%), "Recognition of Tenure Rights" (50%), and "Strategic Vision, Learning and Direction" (53%). Improvements in "Inclusive and Effective Decision-Making" (38%) and "Coordination and Coherence" (47%) further illustrate that the Pilot has successfully activated local dialogue and joint planning mechanisms. Only one criterion, "Diversity of Knowledge, Cultures and Institutions," remained static at 0%, indicating persistent challenges in integrating diverse cultural and institutional viewpoints into restoration governance frameworks. This area may benefit from expanded stakeholder participation strategies or external facilitation to address institutional gaps.

The site's ability to achieve such performance gains within a relatively short timeframe suggests that there are foundational governance mechanisms in place, particularly around strategic planning and participatory structures, which can be leveraged for further progress. Nevertheless, rooted challenges such as regulatory misalignment, fragmented mandates, and limited financial autonomy continue to act as bottlenecks for several roadmap actions.

Out of 14 governance roadmapped actions (accounting that Action 9 is subdivided into three actions, 9i, 9ii, and 9iii), 10 are already more than 50% complete, which includes 2 actions "nearing completion" and 8 currently classified as "ongoing" (Figure 4.3). This means that 71% of all proposed actions have moved past the initial phases, demonstrating a high level of implementation maturity across multiple governance dimensions. A further 4 actions (29%) are classified as "initiated", indicating that work has begun but remains at an early stage. Importantly, no actions are marked as "not started" or "not feasible," which is a highly positive sign of feasibility across the board, and reflects consistent efforts to engage, adapt, and implement solutions—even in the face of systemic challenges such as legal misalignment, limited stakeholder capacity, and financial constraints. The "initiated" actions (e.g., Actions 2, 6, 9.i, and 12) reflect areas that remain sensitive to either political, institutional, or economic conditions. These typically involve stakeholders with unresolved interests or where technical feasibility and institutional mandates require further testing and negotiation—such as tenure rights compensation mechanisms or the implementation of long-term governance reforms.

Table 4.1. Results from governance self-assessment at Nahal Dalia Pilot Site by criteria in 2022 and 2024.

GOVERNANCE CRITERIA	Performance Rates		Variation from 2022 to 2024
	2024	2022	
1. Governance Structure and Legal Alignment	48%	25%	23%
2. Inclusive and Effective Decision-Making	60%	23%	38%
3. Recognition Of Tenure Rights	70%	20%	50%
4. Diversity Of Knowledge, Cultures and Institutions	0%	0%	0%
5. Devolution	75%	65%	10%
6. Strategic Vision, Learning and Direction	73%s	20%	53%
7. Coordination and Coherence	67%	20%	47%
8. Accountability	70%	20%	50%
9. Grievance and Conflict Resolution	80%	20%	60%
Average Performance	**60%**	**24%**	**37%**

Figure 4.2. Governance Indicators/Criteria visualization. Comparison between 2022 and 2024 at Nahal Dalia Pilot Site.

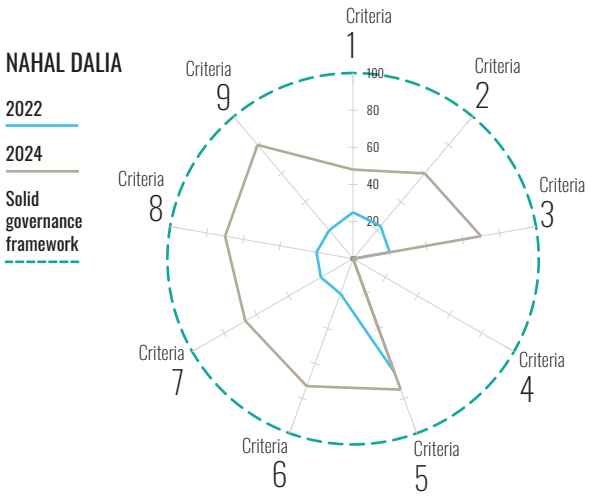
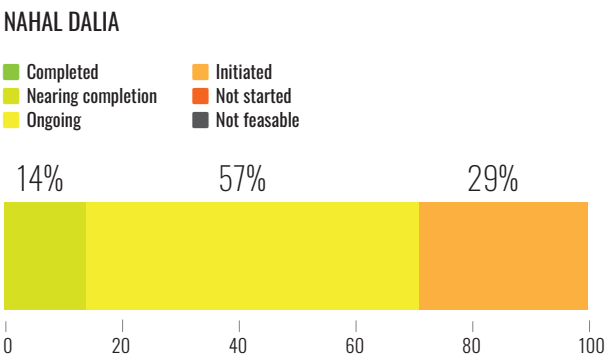


Figure 4.3. Progress on implementation of Roadmap actions in Nahal Dalia Pilot Site.



Actions marked as "nearing completion" (Action 9ii and Action 10) are concentrated in the area of stakeholder outreach and accountability. This aligns with the reported enablers, including a dedicated INPA team, specific budget lines, and effective use of transparency mechanisms, community programming, and inter-project partnerships. These actions have benefited from a relatively high degree of institutional control and stakeholder responsiveness. The "ongoing" actions (including Actions 1, 3, 4, 5, 7, 8, 9iii, and 11) are generally tied to strategic planning, vision-building, stakeholder coordination, and initial steps toward legal/institutional reform. These require sustained engagement, iterative negotiation with stakeholders, and, in some cases, the gradual building of consensus or alignment around shared interests (e.g., Action 3 on shared vision, or Action 11 on joint goal setting with landowners and fishpond operators).

In summary, the implementation pattern in Nahal Dalia is characterized by widespread activation and incremental scaling, supported by functional coordination structures, early-stage technical actions, and focused outreach. While barriers remain, this Pilot Site is one of the more advanced in terms of roadmap engagement and practical follow-through.

From a **stakeholder** perspective, dynamics at Nahal Dalia are highly intricate and pivotal to roadmap implementation. While INPA has maintained leadership and initiated broad consultation mechanisms, engagement remains uneven across stakeholder groups. For example, community outreach to younger kibbutz members is still at an early stage, and the Drainage Authority's community officer has not yet been engaged in outreach activities. Ma'ayan Tzvi, a central actor, demonstrates fluctuating interest and prioritisation, which has impacted coordination timelines and shared planning. Nevertheless, the site has demonstrated consistent efforts to increase visibility and inclusion creating a platform for growing trust and multi-party dialogue. The complexity of stakeholder dynamics is further reflected in the Site's exposure to multiple anthropogenic threats, including nutrient overload, aquaculture effluents, small dams, and surface water abstraction. Many of these pressures originate from stakeholders actively engaged in or impacted by restoration actions, reinforcing the need for tailored engagement and conflict-sensitive planning. The newly mapped measures—such as rewilding of fishponds, construction of flood reservoirs, and bank restoration—are tied to both ecological goals and local livelihoods, adding further urgency to the development of trust-based and co-beneficial governance solutions.

Across the implementation of roadmap actions, several key **enablers** stand out (Table 4.2.). First, the establishment of an active steering committee and thematic operational discussions has created a space for collaborative problem-solving, allowing for incremental gains even in the face of institutional complexity. The INPA, acting as lead entity, has shown consistent commitment and has mobilised in-house expertise, dedicated teams, and community outreach efforts to sustain engagement and transparency. Additionally, co-developed plans like the Carmel Coast Master Plan and the Kabara Project provide a broader institutional umbrella under which the Pilot's restoration goals can align and scale. Pilot-scale technical demonstrations, including floodwater reservoirs and alternative fishpond management models, are helping bridge the gap between planning and implementation by showcasing feasibility. Also, mapping of interests and goals has emerged as an important tool for stakeholder alignment, especially where formal agreements are still under negotiation. Outreach efforts such as focus groups, digital communications, public training, and academic research collaborations have expanded awareness and provided legitimacy to the initiative.

Despite these enablers, the site faces persistent systemic **barriers** that limit the full realisation of governance transformation. Chief among these are regulatory misalignments and the absence of enforceable mandates for cross-sectoral collaboration. The Water Quality Reform and broader water extraction policies have created ecological stressors, particularly salinisation, while excluding the Nahal Dalia reserve from consideration. This lack of legal recognition has downstream impacts on funding, regulation, and institutional accountability.

Daily activity of Common terns (*Sterna hirundo*) on the constructed nesting islands.

Table 4.2. Enablers and Barriers identified in Nahal Dalia through the Roadmap implementation.

ENABLERS

- **Strong Coordination Mechanisms:** A functioning and consistent steering committee enables coordination among INPA, Ma'ayan Tzvi, Dagon, and relevant agencies. INPA's governmental authority provides credibility and facilitates access to regulatory and policy instruments.
- **Strategic Planning Instruments:** The Pilot benefits from alignment with broader frameworks such as the Carmel Coast master plan, the fishpond agriculture plan, and ICZM principles. These help structure restoration objectives within a wider land-use context.
- **Funding and Resource Mobilization:** Funding from the Open Spaces Conservation Fund and INPA internal budgets supports outreach, research, and planning. Climate adaptation funding and collaborations with other projects offer additional financial avenues.
- **Transparent, Inclusive Planning:** The project promotes transparency and documentation, with goals co-developed by stakeholders. Public and community engagement activities have been launched, with trust and support from uninvolved publics and communication channels open to residents.
- **Adaptive Management and Site-Specific Flexibility:** A large site area and unprofitable fish farming operations provide latitude for proposing land-use change. Small-scale actions are used to test solutions without threatening existing livelihoods.
- **Cross-Sectoral Engagement:** The project engages diverse actors, including academics, NGOs, and public institutions. Authorities have defined mandates, and there is effort toward integrating initiatives to strengthen system-wide implementation.
- **Monitoring and Technical Tools:** Ongoing ecological assessments and planning tools underpin action credibility. The site benefits from sustained INPA-led monitoring and expert-based input.

BARRIERS

- **Institutional Fragmentation and Governance Gaps:** The steering committee lacks legal authority and contractual force, limiting enforceability of agreements and long-term commitments. There is currently no formal performance evaluation mechanism for the steering committee or management strategy, and no long-term monitoring or management system in place. The link between national and local decision-making remains weak, and the absence of a national climate adaptation strategy that integrates Nature-based Solutions hampers alignment with broader policy frameworks and long-term strategic planning.
- **Stakeholder Dynamics and Participation Issues:** Stakeholder engagement is inconsistent and marked by varied levels of interest and influence—most notably, a vocal minority often dominates decision-making while the broader majority remains passive. Ma'ayan Tzvi's reluctance to advance restoration actions is linked to economic uncertainties and status quo benefits. Participation from other key groups such as local councils and certain landowners has been limited. The dynamics are further strained by lack of formal cooperation mechanisms and competing stakeholder priorities.
- **Economic and Legal Constraints:** The fishpond's low profitability contributes to risk aversion among stakeholders, with reluctance to adopt land-use changes that may impact short-term income. Statutory and regulatory limitations, such as those enshrined in the Settlement Law and fishpond discharge regulations, further constrain flexibility. There is a lack of economic analysis and mechanisms to reconcile short- and long-term trade-offs, and water management conditions remain contested. Private actors show limited willingness to co-finance restoration, which undermines shared ownership of the project.
- **Resource and Capacity Limitations:** INPA leads implementation with minimal operational or financial support from other actors. Local councils do not contribute resources, and some stakeholders remain disengaged from planning or delivery. Financial limitations restrict the ability to formalize cooperation frameworks or hire neutral facilitators to mediate between parties. As a result, efforts to build real financial partnerships with stakeholders remain underdeveloped.

- **Coordination and Monitoring Deficiencies:** Past failures in coordinating water discharge from fishponds exemplify systemic weaknesses in cross-sectoral oversight. There is no established mechanism for consistent coordination between sectors or authorities, and no monitoring framework has been institutionalized that might track and evaluate governance performance.

- **Trust and Engagement Challenges:** While INPA is generally trusted, there is insufficient transparency in economic dimensions of the measures, and reluctance from stakeholders to share sensitive financial information. Stakeholder engagement remains fragile due to scattered interest, conflicting agendas, and potential bias in participation outcomes. Sanctions and enforcement are consciously avoided to maintain cooperative relationships, which limits institutional leverage and can weaken accountability over time.

Anguilla anguilla.
© Dana Milstein

Additionally, economic dependencies—particularly of Kibbutz Ma'ayan Tzvi and Maagan Michael on the fishponds—pose a barrier to restoration planning that involves land use or operational shifts. The absence of financial transparency and reluctance to disclose economic data make it difficult to design compensation mechanisms or joint investment strategies. Moreover, while cooperation with stakeholders like the kibbutzim has been critical, the establishment of financial partnerships remains difficult. Most collaborative actions have not yet translated into shared financial commitments, as long-term benefits must be balanced against short-term productivity and income stability. Real partnership is often seen as contingent on the development of equitable financial solutions that align ecological and economic interests.

Coordination challenges also persist due to voluntary, informal, or non-binding collaboration arrangements among stakeholders, which limit long-term planning security. A lack of external mediation or facilitation capacity (due to budgetary constraints) further complicates conflict resolution and vision-building across stakeholder groups.

4.2 Recommendations for strengthening progress on Roadmapped Actions

The Nahal Dalia Pilot Site has made substantial progress in implementing governance transformation actions, with 71% of actions already initiated, ongoing, or nearing completion. This trajectory is supported by strong enablers such as an active and trusted steering committee, collaboration among key government entities (e.g., INPA, Water Authority), and the development of shared strategic tools like a map of common interests. These foundations have allowed the pilot to advance with coherence, even in the absence of a formalised governance structure. However, the lack of institutionalisation of these arrangements remains a challenge and underscores a potential need for a Governance Action Plan. This plan would define clear roles, responsibilities, and timelines while addressing mandate clarification and collaboration incentives for key stakeholders, including landowners like Ma'ayan Tzvi.

To ensure durable coordination, the site might consider institutionalising a joint management mechanism, moving beyond trust-based collaboration to formalised co-management frameworks. A governance structure with clearly assigned responsibilities and legal or contractual commitments would help overcome fragmented authority, align fishpond and water regulation practices with ecological goals, and improve coherence among actors with competing mandates. Strengthening stakeholder engagement should also remain a priority. The outreach initiatives launched by INPA—ranging from educational activities to community-based events—might benefit from being expanded and embedded into a long-term engagement strategy. These efforts are critical to maintaining legitimacy, encouraging new partnerships, and reducing resistance from actors with divergent priorities or low initial interest.

Where resistance persists—particularly around land use, restoration at the fishpond interface, or management roles—priority should be given to low-resistance actions such as small-scale pilots and phased demonstrations. These can build confidence among hesitant actors and help establish proof-of-concept for broader interventions. Economic analysis and communication of long-term ecosystem service benefits (e.g., flood mitigation, biodiversity, and recreation) could also help align stakeholder expectations and strengthen co-benefits for private entities. Simultaneously, fallback options such as the "zero alternative" (focusing on minimum restoration within INPA jurisdiction) should remain part of a transparent strategy to ensure progress under constrained cooperation scenarios. By building on current achievements while formalising coordination, the Nahal Dalia site can strengthen its governance framework and further its role as a replicable model for integrated coastal restoration.

The Nahal Dalia Pilot Site is impacted by a range of environmental pressures, including nutrient loads, groundwater over-extraction, dam-induced connectivity loss, invasive species, and sedimentation. These threats directly affect the ecological functioning of the reserve and interact with land-use and water management decisions. In response, a comprehensive suite of measures has been designed, such as the removal and relocation of dams, rewilding of fishponds, and construction of artificial wetland habitats. Governance actions underpin these interventions by addressing stakeholder coordination, regulatory alignment, and public participation—thereby ensuring that implementation is adaptive and robust in the face of ecological and socio-economic risks.

4.3 Analysis of Governance actions at Adaptation Measure level

4.3.1 Adaptation Measure Category 1: (Coastal) Wetland Restoration

This category includes governance actions essential to facilitating the **restoration of coastal marshes** and the **ecological rewilding of fishponds** at Nahal Dalia. Central to these actions is the creation of shared visions, stakeholder coordination, conflict resolution, transparency, and aligning multi-stakeholder interests for effective ecological management and restoration implementation.

NAHAL DALIA ACTION 3: Create a shared vision for stakeholders with conflicting interests, finding ways to work together and build a common vision, promoting strategic vision, learning, and direction.

This action involves the development of a common vision among stakeholders who currently hold conflicting interests, notably ecological restoration and economic productivity associated with fishpond operations. To facilitate coastal marsh restoration and fishpond rewilding, the action emphasizes operational discussions, pilot testing of ecological solutions such as green basins for filtering fishpond outputs, and collaborative planning for infrastructure improvements like floodwater reservoirs and potentially replacing existing dams. The establishment of this shared strategic vision aims to reconcile ecological objectives with stakeholder concerns regarding the ongoing viability of local economic activities.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**

ENABLERS	BARRIERS
• Operational discussions addressing specific issues with stakeholders. • Pilot-scale restoration tests without immediate risk to fishpond productivity. • Willingness to seek balanced solutions between ecological and fishery needs, reflected in collaborative initiatives such as green basins pilot, joint reservoir planning with Kibbutz Ma'ayan Tzvi, and ongoing dam management discussions.	• Complexity in developing and securing viable economic alternatives if fishpond income decreases. Need to maintain the operational viability of fishpond activities.

NAHAL DALIA ACTION 5: Often conflicts between stakeholders have arisen and there is a need to facilitate effective coalitions between all of the interested parties.

This action directly addresses recurring stakeholder conflicts, especially those related to ecological management versus local economic interests. Specifically, it includes fostering coalitions around identified shared interests, such as joint initiatives with the Drainage Authority for dam removal, which would facilitate fishpond rewilding by improving water flow and ecological conditions in the coastal marsh. Effective conflict resolution mechanisms established under this action would help sustain long-term restoration efforts by mitigating stakeholder tensions and aligning actions with mutually beneficial ecological outcomes.

GOVERNANCE INDICATOR: **GRIEVANCE AND CONFLICT RESOLUTION**

ENABLERS	BARRIERS
• Identified shared interests enabling strategic alliances. • Shared interest with Drainage Authority in removing dams to improve ecological conditions. • The Water Authority considers INPA a professional authority for providing expert opinions on balancing water resource utilization with ecosystems needs.	• Relationships and conflicts extend beyond project boundaries. • Limited coordination time.

NAHAL DALIA ACTION 6: Find new and creative mechanisms to Kibbutz Maagan Michael that have fewer property rights, such as land users (but not owners).

This action focuses on developing creative, context-sensitive mechanisms to support Kibbutz Ma'agan Michael, which leases fishponds from landowner Kibbutz Ma'ayan Tzvi. The objective is to balance ecological restoration ambitions—particularly fishpond rewilding—with the operational and economic realities of existing leaseholders. While INPA, as a governmental authority, is not formally required to compensate Ma'agan Michael, it has actively sought to foster cooperation by supporting the kibbutz in exploring alternative economic initiatives that would align with restoration goals. This approach acknowledges the complexities of lease-based tenure and the role of cooperative business structures in land use negotiations. Importantly, compensation or benefit-sharing mechanisms are being considered not at the individual level, but with the kibbutz as a collective economic entity. This distinction has helped maintain clarity in engagement and may serve as a model for managing similar multi-party land tenure arrangements. However, the dynamics between landowner and leaseholder remain sensitive. Ma'agan Michael, while open to field actions and engaged in other ventures (e.g., water and energy), remains concerned about potential impacts on fish farm productivity and the financial implications of losing leased lands. Moreover, there is a perception that current proposals benefit Ma'ayan Tzvi more than other actors, such as Dagon, a commercial fish company operated by Kibbutz Ma'agan Michael. These dynamics essentially form a system of checks and balances that requires all stakeholders—landowner, leaseholder, and implementing agency—to demonstrate flexibility and sustained cooperation in order to advance restoration goals without undermining existing land use arrangements.

GOVERNANCE INDICATOR: **RECOGNITION OF TENURE RIGHTS**

ENABLERS	BARRIERS
• Willingness of Ma'agan Michael to participate in pilot activities. • Identification of common interests between INPA and Ma'agan Michael. • INPA's proactive support for developing economic alternatives aligned with restoration.	• Concerns about negative impacts on fish farm productivity and lease stability. • Lack of direct entitlement for Ma'agan Michael under the land ownership framework. • Unequal distribution of perceived benefits, with Ma'ayan Tzvi gaining more than Dagon.

NAHAL DALIA ACTION 11: Determine goals and promote common joint actions on common issues and concerns from interested parties.

This action involves defining explicit ecological restoration goals and metrics collaboratively with stakeholders, facilitating joint actions toward coastal marsh and fishpond ecological rewilding. Specifically, it addresses stakeholder concerns, such as those related to potential impacts on fishpond operations, by promoting practical compromises and collaborative solutions, such as the creation of shared floodwater reservoirs. In addition, the evaluation and potential reuse of sediment removed from the reserves (e.g., through clay ripening) has been identified as a low-risk pilot action that could support bank stabilization and ecological goals while involving technical collaboration with fishpond operators. Establishing jointly agreed-upon restoration goals and actions—including such technical pilots—directly supports adaptive restoration measures by aligning stakeholder interests and clarifying shared responsibilities.

GOVERNANCE INDICATOR: **COORDINATION AND COHERENCE**

ENABLERS	BARRIERS
• Goals, objectives, and performance metrics have been co-developed through a participatory process and formally endorsed by all members of the steering committee. • Targeted professional dialogues with key stakeholders have helped build mutual understanding and advance alignment around shared restoration goals.	• Landowner rights restrict achievable agreements. • Concerns over ecological impacts on fishpond operations by key stakeholders. • Necessity of compromises to advance ecological restoration.

4.3.2 Adaptation Measure Category 3: Restoring Hydraulic Connectivity

These governance actions specifically target the restoration of natural hydrological connectivity at the Site, focusing on the **physical reconnection of the historically estuarine Difle stream with its saltmarsh ecosystem**. By addressing freshwater flow, policy recognition of ecological water needs, and adaptive infrastructure changes (e.g., dam removal, dynamic dams, floodwater reservoirs), these actions seek to sustainably enhance ecological conditions, water quality, and habitat functionality within the coastal saltmarsh environment. The actions tackle both the administrative policy dimensions and the operational governance processes necessary for effective hydraulic connectivity restoration.

NAHAL DALIA ACTION 2: Advocate for policy changes that address the negative impacts of the Governmental water authority's policies on water production, particularly the encouragement of increased water extraction and desalination, which lead to reduced water levels, salinization, and detrimental effects on the Nahal Dalia nature reserve's natural habitat. Also, lobby for the amendment of the "Water Quality Reform in Fisheries" legislation to recognize the Nahal Dalia nature reserve as a protected area and incorporate its ecological needs into the regulatory framework.

This governance action directly targets essential policy reforms to mitigate adverse hydrological impacts caused by excessive water extraction and desalination practices, as well as fisheries-related water regulations. Advocacy efforts aim at formally recognising ecological water requirements and establishing the Nahal Dalia nature reserve as a legally protected ecological entity with clearly defined water rights. Such recognition is critical for legally embedding ecological water flows required to reconnect and sustain freshwater inputs to the saltmarsh ecosystem and historical estuarine habitats. This action is specifically relevant for hydraulic connectivity restoration as it directly addresses legal frameworks essential for ensuring sustained ecological water allocation, thereby supporting the long-term ecological recovery and hydrological connectivity between the stream and saltmarsh.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• Availability of alternative approaches for managing the fishpond–reserve interface that comply with existing legal constraints. • Clear recognition of the primary legislation that identifies ecological water rights ("Nature's right for water"), and the existence of pertinent regulations (e.g., Fisheries Reform, Drainage and Flood Protection Law, Nature Reserves and National Parks Law). • Shared interest with the Drainage Authority in removing dams to improve ecological conditions. • Initiation of a regional water planning process, with the Water Authority agreeing to lead coordination efforts to balance growing demands and sustainable resource use. • The presence of engaged actors (INPA, Drainage Authority) enables the implementation of adaptive measures even within regulatory limitations. • Strategic adaptation within existing legal frameworks – the ability to advance by working within current regulations allows for progress without requiring immediate legal reform.	• Current restrictive policies: Governmental Fisheries Reform, which has overlooked ecological requirements of the Nahal Dalia nature reserve. • No national climate adaptation strategy exists that includes NbS. • Challenges related to reforming existing legislation due to complex policy frameworks and limited influence over national authorities' mandates. • Dependence on institutional flexibility: Effective adaptation within legal limits depends on the willingness of regulatory bodies to interpret and implement policies in supportive ways, which is not guaranteed.

NAHAL DALIA ACTION 7: Promote and increase engagement with the governing committees or regulatory authorities and share lessons-learnt regarding possible improvements and integrations of these into policy or regulatory structures.

This governance action seeks strategic engagement and improved coordination with governing bodies and regulatory authorities to leverage learnings into broader water governance improvements at local, subnational, and national scales. Specifically, the action includes advocating for greater institutional recognition and integration of ecological needs related to freshwater inflows into saltmarsh ecosystems. The increased institutional engagement and policy dialogue are crucial for scaling governance improvements, ensuring that ecological flow requirements for reconnecting the historical estuary and restoring hydrological connectivity are formally embedded into water management policies and practices.

Within the specific context of reconnecting the historical estuary with the saltmarsh, this action provides an institutional pathway for translating pilot-based hydraulic connectivity improvements (such as dam modifications, floodwater reservoir creation, and ecological flow enhancements) into broader, enduring governance frameworks and policies.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**

ENABLERS	BARRIERS
• Existing support from regulators who have provided targeted funding for certain project elements, reflects an existing channel of engagement. • INPA's recognized expertise and role as a government authority capable of effectively communicating ecological evidence and management needs to higher governance levels. • Existing initiatives such as the Carmel Coast Master Plan, creating additional opportunities to embed ecological restoration priorities into wider regional policy frameworks. • The establishment of joint management structures and intent to engage regulatory authorities for ecological restoration, representing a critical step toward institutional integration and long-term implementation success. • Existing regional and national initiatives that support hydrological connectivity, including watershed-level master plans led by Drainage Authorities and the Ministry of Agriculture, INPA policy programs for returning water to nature, and a national strategic plan for stream restoration in Israel.	• The project's local scale limits the level of regulatory involvement and influence, making it challenging to prioritize ecological water needs within broader governance processes. • Difficulty in generating sustained interest from national regulators, as current policies prioritize broader economic and resource extraction interests over localized ecological concerns. • Lack of a national vision, legislation, or master plan in Israel that explicitly addresses hydrological connectivity as a dedicated objective. • Relevant authorities capable of advancing this issue often operate without strategic coordination, limiting synergies and reducing policy impact.

4.3.3 Adaptation Measure Category 4: Artificial Habitat Creation

At the Nahal Dalia site, the creation of artificial bird islands and related biodiversity habitat planning requires not only ecological planning but also broad-based societal support and institutional legitimacy. Given the complexity of land tenure, economic dependencies, and ecological sensitivities in the area, the success of such interventions hinges on inclusive governance processes that foster dialogue, co-design, and sustained stakeholder collaboration. The following actions strengthen the social and institutional foundations necessary to advance artificial habitat creation by promoting transparency, youth engagement, and collective planning approaches.

NAHAL DALIA ACTION 8: Improve and develop further stakeholder management. Hire a neutral mediator if needed to aid in setting up a shared vision across conflicting stakeholders and help manage the communications.

This governance action supports the establishment of a shared vision among stakeholders with divergent interests—particularly between INPA and Kibbutz Ma'ayan Tzvi—by enhancing stakeholder coordination mechanisms and, where needed, deploying external mediators. Such facilitation is important throughout the project but is especially relevant when planning visible ecological interventions, such as artificial bird islands, which may raise concerns around land use and ecological trade-offs. While the formal appointment of a mediator has not been implemented, the Pilot team has taken on this coordination role informally. This emerging arrangement is functioning relatively well in early stages, but its long-term effectiveness remains to be assessed. Notably, much of the habitat creation to date has occurred within the boundaries of the nature reserve, which has eased coordination efforts and limited potential conflict.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• Transparency and open discussion within the steering committee. • Development of a stakeholder "Map of Interests," laying the groundwork for more targeted conflict resolution and inclusive planning. • Progress toward establishing a dedicated management authority for joint planning. • Ongoing efforts to secure additional funding sources for stakeholder engagement and conflict mediation. • Habitat creation occurring largely within the boundaries of the nature reserve, reducing potential land-use conflicts.	• Lack of financial resources to hire professional mediators or external facilitators. • Kibbutz Ma'ayan Tzvi's reluctance to share the costs of facilitation efforts. • The absence of a formally appointed mediator, which places the coordination burden on the planning team and limits neutrality in complex negotiations.

Dalia stream estuary. Existing dam prevents river to sea connectivity.
© Aviv Kurt

NAHAL DALIA ACTION 9i, 9ii, 9ii: Expand stakeholder engagement by connecting with the younger generations of the Kibbutz in an attempt to improve relationships and integrate a greater diversity of stakeholders, by increasing the number of meetings in the steering committee, by increasing and developing an outreach program which improves communications and gives greater visibility to the project, and by creating a common dialogue on common relevant issues across stakeholders and interested parties.

This set of actions seeks to deepen and diversify stakeholder participation, particularly by involving younger and previously disengaged members of local communities. Youth engagement is seen as a way to build long-term support for restoration and raise ecological awareness, though it is not currently considered a direct enabler of stakeholder cooperation. Rather, it supports broader educational goals and community involvement, which may lead to secondary benefits in governance. A specific meeting was held for members of Kibbutz Ma'agan Michael to foster engagement, yet a formal mapping or targeted strategy for youth or young adult groups has not yet been developed, despite the presence of many such groups in the region. The project also aims to foster dialogue through increased visibility, outreach programming, and inclusive discussions across stakeholders. Visible ecological interventions such as artificial bird islands offer a strong platform for engagement and dialogue.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• INPA has developed and is implementing a public and community program to foster stakeholder connection. • A dedicated INPA team with a specific budget has contracted an external outreach firm to support engagement and visibility efforts. • Public participation mechanisms are in place, including digital tools, community focus meetings, and targeted outreach campaigns. • Thematic meetings and informal discussions are already underway, particularly through parallel regional initiatives such as the Carmel Coast Master Plan and the Kabara Project. • A dedicated meeting was held with Kibbutz Ma'agan Michael members to promote direct community engagement.	• No formal mapping of youth or young adult groups has been undertaken, and a strategy to engage them is yet to be developed. • Youth engagement is currently viewed as an educational effort, with its impact on broader stakeholder cooperation is still uncertain. • Community officers from the Drainage Authority have not been actively involved in the outreach process. • Cooperation with kibbutz residents and youth remains inconsistent and is influenced by internal kibbutz priorities. • Time constraints and difficulty in coordinating regular steering committee meetings persist. • Collaboration with Ma'ayan Tzvi fluctuates depending on their perception of the project's relevance.

Trachomitum venetum.
© Ron Fromkin

4.3.4 Remaining Governance Actions: Project Implementation and Governance Systemic Transformation

In the context of Nahal Dalia, these actions address legal alignment, accountability, coordination, funding structures, and the integration of restoration priorities into formalised management frameworks.

NAHAL DALIA ACTION 1: An unclear governance structure which is not coordinated across sectors needs greater definition and development.

This action seeks to define and formalize the governance architecture that underpins all restoration activities at Nahal Dalia. It involves clarifying institutional roles, securing multi-sectoral commitment, and strengthening coordination between the steering and professional committees and broader regional planning frameworks (e.g., Carmel Coast Plan). This is foundational for enabling any adaptation measure—without clear structure, stakeholder trust and operational alignment are not possible. An active steering committee and the promotion of a comprehensive Carmel Coast Plan provide a solid foundation for intersectoral coordination, though sustaining the governance structure remains uncertain due to limited budget allocation and the reliance on INPA's unilateral leadership.

NAHAL DALIA ACTION 4: Improve in the area of stakeholder management mechanisms given the little resources and time investment available to the Pilot Site.

Effective implementation across all adaptation measures requires robust, reliable, and timely stakeholder engagement. This action focuses on improving the operational consistency of stakeholder coordination (e.g., regular meetings, communication routines), despite constraints in time and financial resources. Without such mechanisms, project delivery and legitimacy are at risk across all restoration fronts. Regular meetings and ongoing communication among stakeholders facilitate coordination, but persistent resource limitations and the absence of formalized collaboration agreements continue to hinder effective stakeholder management.

NAHAL DALIA ACTION 10: Increase transparency and cooperation across stakeholders.

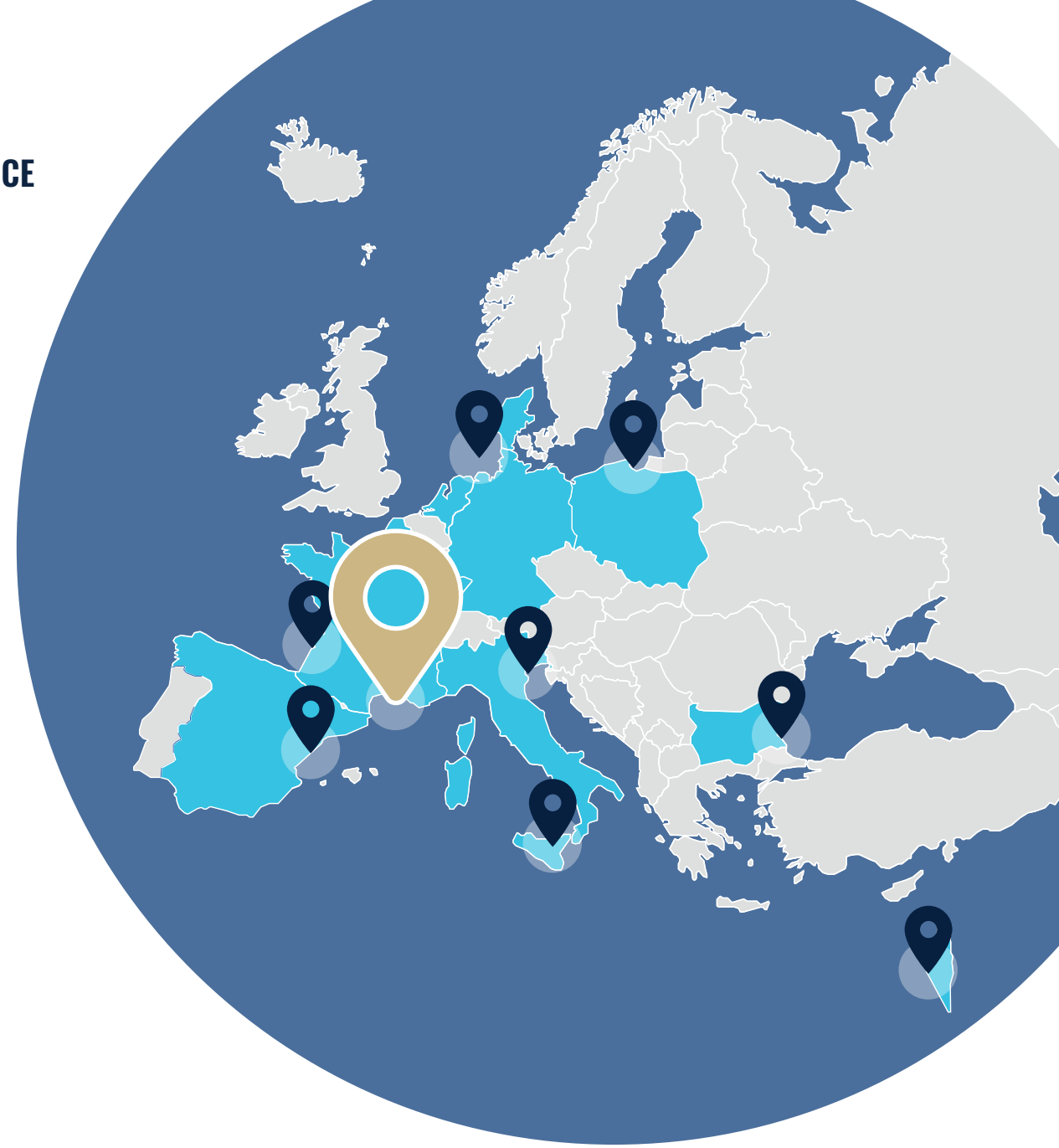
It seeks to strengthen collaboration by enhancing transparency across stakeholder groups, which is essential in a context where ecological restoration intersects with private land use, water management, and economic interests. The project is supported by an internal culture of openness, with project goals and stakeholder positions shared in collaborative forums such as the steering committee. Focused professional discussions have provided platforms for mutual understanding, and joint actions on specific issues—such as water discharge or ecological monitoring—have helped to establish early trust and cooperation.

To build on these efforts, the Pilot is exploring the development of a shared documentation platform that would consolidate and make information more accessible to all actors involved. However, persistent barriers remain. Economic analysis and forward planning are limited by the reluctance of private stakeholders to disclose sensitive financial data, particularly concerning fishpond operations. This reluctance is closely tied to a broader lack of trust in governmental entities, which complicates long-term cooperation and limits the possibility of fully transparent, multi-stakeholder restoration planning. Addressing this challenge will require patient trust-building and potentially new mechanisms to safeguard private interests while supporting collective ecological objectives.

NAHAL DALIA ACTION 12: Implement the identified governance reforms according to the improvement planning. If there are actions that fail or cannot be progressed, re-evaluate returning to minimal work, reducing the interventions to the boundaries of the reservation, within the limits of INPA authority and the legal framework.

This action provides a built-in mechanism for adaptive project management. It recognizes that stakeholder resistance or legal constraints may delay or block full restoration and proposes a fallback strategy (resulting in minimal intervention), whereby the INPA focuses on restoration within its legal scope. This ensures that ecological gains are not entirely lost even when broader consensus fails. INPA's governmental authority enables minimal restoration actions even without full consensus, although its limited mandate and the need to preserve stakeholder relationships constrain broader implementation of governance reforms.

PILOT SITE GOVERNANCE BRIEFS



REST-COAST

5. RHÔNE DELTA

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With collaboration from pilot site teams

July 2025

Funded by the European Union

5. RHÔNE DELTA

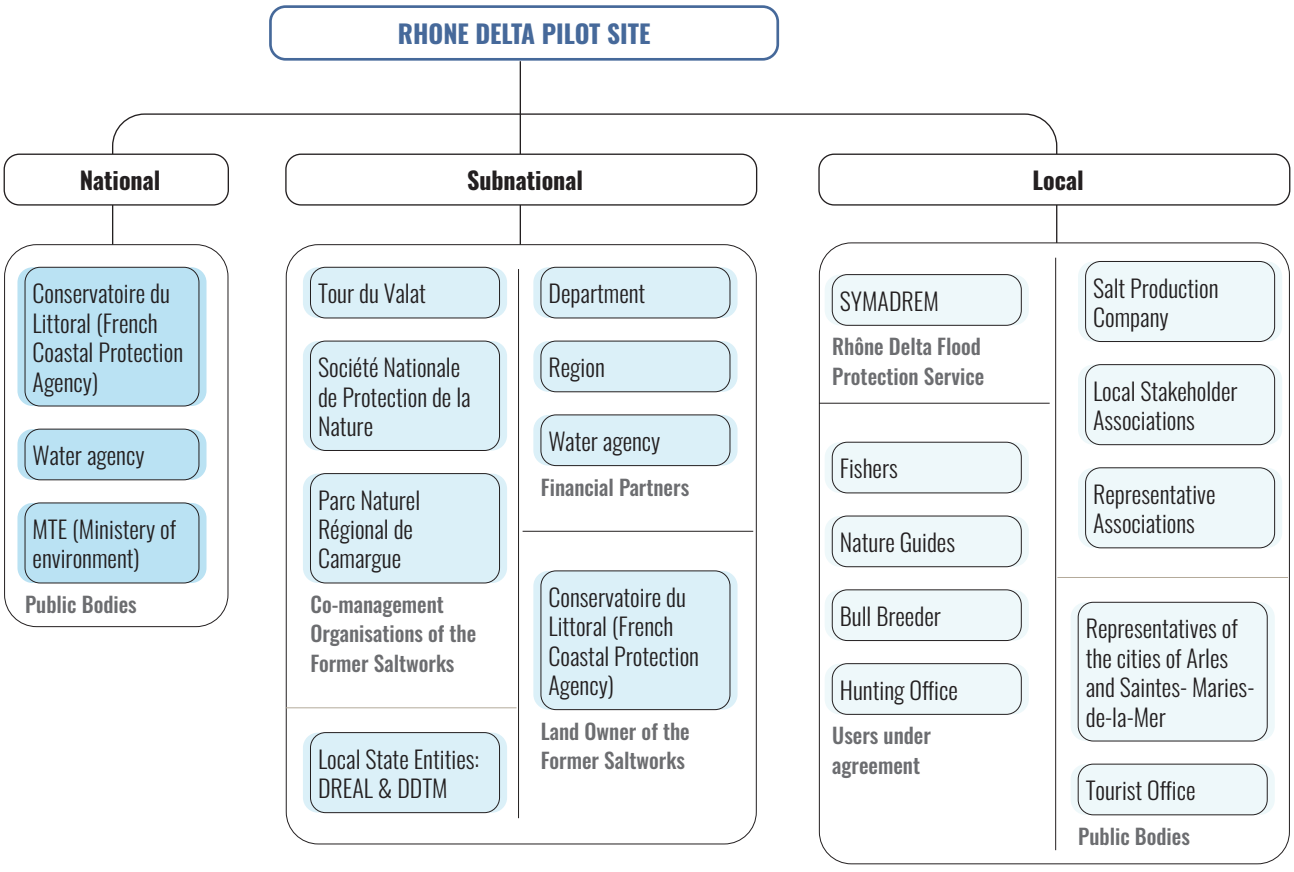
The Rhône Delta Pilot Site features a multi-tiered and well-established governance structure involving actors at the national, subnational, and local levels (Figure 5.1). National public institutions oversee coastal protection, water resource management, and environmental policy. The next subnational level includes administration and technical bodies involved in flood risk management, conservation planning, and the financial support of restoration efforts. Locally, municipalities, user groups, and private stakeholders—such as fishers, salt producers, nature guides, and local associations—play a direct role in managing and using the area. The Conservatoire du Littoral and SYMADREM represent key national public bodies and state services, while the *Parc Naturel Régional de Camargue*, *Tour du Valat*, and *Société Nationale de Protection de la Nature* play an active role in co-managing the former saltworks area.

While local governance is further diversified by the participation of municipal representatives from Arles and Saintes-Maries-de-la-Mer, tourist offices, and users under agreement such as fishers, bull breeders, nature guides, and hunting offices. Financial and technical support is provided by entities such as the Water Agency, regional departments, and local state services (DREAL & DDTM).

5.1 Pilot-wide governance framework: State of play and analysis of roadmapped actions

The Rhône Delta Pilot Site demonstrates steady progress in the implementation of its governance roadmap actions. Out of **9 road-mapped strategic governance actions**, most are either *ongoing*, *nearing completion*, or *fully implemented*, indicating

Figure 5.1. Stakeholder map for the Rhône Delta Pilot Site.



relatively high levels of maturity and institutional follow-through compared to other sites. In particular, Action 5 (contributing to a new management plan) has been completed, with the plan validated and implementation underway, supported by additional funded restoration activities. Similarly, actions linked to coordination, stakeholder engagement, and legal alignment are progressing, with several marked at 75–99% implementation.

Governance criteria indicators further underscore this positive trajectory (Table 5.1 and Figure 5.2). Between 2022 and 2024, the Rhône Delta saw a substantial increase in its average governance performance—rising from 64% to 89%, with improvements observed across all nine indicators. Notably, "*Accountability*" and "*Grievance and Conflict Resolution*" saw the largest increases (+60% and +50%, respectively), reflecting growing institutional clarity and a more robust system of stakeholder engagement and feedback. Other indicators such as "*Strategic Vision, Learning and Direction*" (+33%) and "*Coordination and Coherence*" (+20%) also reflect the impacts of the new management plan and collaborative project activities like those conducted under H2020 WaterLANDS.

Actions related to stakeholder collaboration (e.g., Actions 7i through 7iv) and inclusive decision-making (Actions 2 and 9) show varied implementation levels. While participation efforts have been strengthened during the management plan development, the long-term sustainability of this engagement is contingent on securing stable funding. Specific activities—such as making studies more accessible (Action 7iv) and increasing the visibility of active stakeholders (Action 7iii)—have progressed well but still face limitations in outreach capacity and financing.

Figure 5.2. Governance Indicators/Criteria visualization. Comparison between 2022 and 2024 at Rhône Delta Pilot Site.

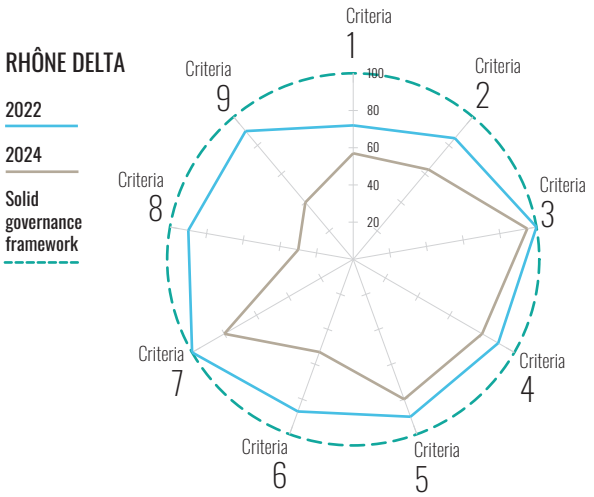


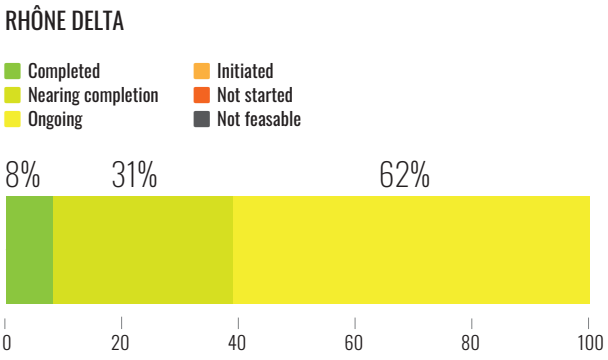
Table 5.1. Results from governance self-assessment at Rhône Delta Pilot Site by criteria in 2022 and 2024.

GOVERNANCE CRITERIA	Performance Rates		Variation from 2022 to 2024
	2024	2022	
1. Governance Structure and Legal Alignment	72%	57%	15%
2. Inclusive and Effective Decision-Making	85%	63%	23%
3. Recognition Of Tenure Rights	100%	95%	5%
4. Diversity Of Knowledge, Cultures and Institutions	90%	80%	10%
5. Devolution	90%	80%	10%
6. Strategic Vision, Learning and Direction	87%	53%	33%
7. Coordination and Coherence	100%	80%	20%
8. Accountability	90%	30%	60%
9. Grievance and Conflict Resolution	90%	40%	50%
Average Performance	**89%**	**64%**	**25%**

The only area where progress remains limited is in sustained financial and governance stability, particularly regarding the future role and funding of the Regional Natural Park and its external partners (Actions 4i and 4ii). Although proposals for new funding have been submitted, the success of these efforts will significantly impact long-term governance continuity.

Overall, the Rhône Delta is one of the Pilot Sites with the most consistent progress across governance indicators and roadmap actions. The implementation of the new management plan has acted as a governance catalyst, and most actions fall in the 75–99% implementation range (Figure 5.3).

Figure 5.3. Progress on implementation of Roadmap actions in Rhône Delta Pilot Site.



Continued efforts to secure external funding and maintain stakeholder participation will be critical for building on this momentum and scaling governance transformation in the longer term.

Delving into the **stakeholder's** perspective, while the multi-actor system offers a broad base for inclusive governance, it also introduces coordination challenges, particularly when roles are defined on an annual basis or when institutional stability, such as within the Natural Park, is uncertain. Engagement dynamics vary, with strong participation during the development of the management plan, but more limited involvement during its implementation phase, especially among certain groups such as rice farmers and environmental associations. This layered and occasionally fragmented structure requires sustained dialogue mechanisms to align priorities and maintain stakeholder engagement over time.

The **enablers** supporting governance and restoration implementation in the Rhône Delta Pilot Site are rooted in a well-structured institutional framework and the long-standing designation of the area as a Natural Regional Park, Ramsar site, and MPA (Table 5.2). Central to this governance system is the mandate of the *Conservatoire du Littoral*, a state agency that provides legal authority and continuity over land management, supported by well-established co-management arrangements and clearly defined roles among stakeholders. The current management plan, developed with stakeholder input and based on adaptive management principles, guides annual monitoring and planning efforts. Funding mechanisms, although dependent on yearly allocations, are supported by state and private project-based sources. The site also benefits from demonstrated institutional support for Nature-based Solutions and strong alignment between restoration objectives and ongoing biodiversity monitoring. Importantly, the participatory process behind the management plan helped consolidate legitimacy and coordination during its development phase, with all key stakeholder groups invited to contribute.

Several governance **barriers** continue to challenge the long-term success of implementation, such as the uncertain institutional role of the Camargue Natural Regional Park, whose delayed charter revision and internal instability have weakened its ability to lead or sustain engagement beyond the planning phase. This is compounded by a reliance on short-term funding cycles, which limit continuity in outreach and restrict the park's operational capacity. Some roles are defined on a year-to-year basis, leading to potentially varying engagement from institutional actors. Public awareness of the benefits of restoration, including modelling studies and monitoring outcomes, also remains limited, underscoring the need for improved communication and visibility. Additionally, unresolved conflicts surrounding water management and dike maintenance persist, reflecting tensions between conservation priorities and local land use concerns.

Salicornia and other annuals colonising mud and sand.

© Fontes, Tour du Valat

Table 5.2. Enablers and Barriers identified in Rhône Delta through the Roadmap implementation.

ENABLERS	BARRIERS
• **Strong Institutional Framework:** The site benefits from clearly defined roles and mandates. Governance is anchored by the *Conservatoire du Littoral*, a state agency with a strong legal mandate, and supported by the co-management framework of the Natural Regional Park and municipalities.	• **Uncertainty in Long-Term Institutional Stability:** The evolving role and questioned legitimacy of the Camargue Natural Regional Park—especially due to delays in the charter renewal—pose challenges for sustained institutional engagement and long-term planning.
• **Designated Conservation Status:** The area holds multiple conservation designations (Natural Regional Park, Ramsar site, MPA), which enhance its legitimacy and enable access to restoration-related funding and planning frameworks.	• **Short-Term Role Allocation:** Governance roles are reassigned on a yearly basis, which leads to inconsistent engagement by some partners and limits the continuity needed for long-term restoration commitments.
• **Robust Planning and Monitoring System:** A validated and adaptive management plan is in place, developed with stakeholder participation. It includes clearly defined objectives, yearly planning, and continuous monitoring, offering a solid base for governance and adaptive restoration.	• **Funding Instability:** Many actions, particularly stakeholder participation and information dissemination, depend heavily on external project-based funding. Fluctuations in national funding and changing government priorities introduce additional uncertainty.
• **Multi-Stakeholder Engagement in Planning:** The management plan's development was inclusive, drawing in participation from a broad set of stakeholders, which helped build consensus and legitimacy during the planning phase.	• **Post-Planning Participation Gaps:** While stakeholder engagement was strong during the planning phase, there has been reduced participation in post-implementation governance. This has been especially noted among specific stakeholder groups such as rice farmers, hunters, and some environmental NGOs.
• **Alignment with NbS and State Support:** Land managers and owners actively support the implementation of NbS, and restoration activities are regularly funded through a combination of annual state contributions and project-specific funding (e.g., H2020 WaterLANDS).	• **Public Awareness and Outreach Limitations:** Despite strong monitoring, broader public understanding of the ecological and socio-economic benefits of restoration remains limited. Information dissemination to the general population is insufficient and needs to be scaled up.
	• **Stakeholder Tensions and Water Management Conflicts:** Ongoing concerns exist among local actors—particularly related to dike maintenance and water governance—which create tensions and may slow down or complicate future steps in implementation. Also, operational weakness in the Natural Park's management has limited its ability to maintain momentum in stakeholder dialogue and communication after the management plan was validated.

5.2 Recommendations for strengthening progress on Roadmapped Actions

To consolidate and scale governance gains at the Rhône Delta site, several targeted measures could help sustain the positive trajectory observed in most governance indicators. These include strategic efforts to reinforce continuity in coordination, broaden stakeholder inclusion, and ensure long-term resource stability.

First, considering that key roles (especially those of Natural Park staff and co-managers) are designated on a yearly basis, it may be beneficial to explore mechanisms for securing longer-term institutional engagement. This could enhance continuity and accountability, particularly given the ongoing uncertainties linked to the governance structure of the Camargue Park and changes in local authorities. Developing multi-year agreements or co-management mandates might help address concerns about short-termism and promote sustained leadership for implementation of the management plan.

Second, additional funding streams could be sought and diversified to reduce dependence on cyclical project-based financing. While recent proposals have been submitted and a new project funded, the need for stable financial support remains central to ensuring ongoing outreach, monitoring, and stakeholder engagement efforts. Strategic engagement with regional or national authorities to communicate the restoration's long-term socio-ecological value could also strengthen financial buy-in and policy support. This is particularly relevant given current concerns about long-term budgetary uncertainties at the national level.

Thirdly, the Rhône Delta pilot could benefit from reinforcing efforts in inclusive stakeholder engagement, particularly by increasing the visibility and involvement of underrepresented groups such as rice farmers, hunters, and environmental organisations. Leveraging the existing strength of the site's management plan—which was validated with broad stakeholder input—may help to reactivate multi-stakeholder dialogue channels that have slowed following the plan's adoption. Regular consultations and participatory platforms could support transparency and allow implementation to adapt to evolving needs and concerns, especially around sensitive issues like water management and dike maintenance. In parallel, strengthening communication and knowledge dissemination remains important. While monitoring activities are ongoing and restoration knowledge is advancing, expanding public outreach and making technical outputs (such as modelling and assessments) more accessible could help to address persistent scepticism toward Nature-based Solutions. Communicating results from current restoration initiatives through tools tailored to non-expert audiences could reinforce transparency and promote broader community engagement.

Finally, to further advance transformation and meet REST-COAST objectives, Rhône Delta could align with general recommendations provided in D5.3, such as:

- Periodically reviewing governance performance using the REST-COAST governance criteria self-assessment tools.
- Clarifying restoration-related mandates and responsibilities between local and regional actors to avoid duplication or confusion.
- Exploring collaborative action planning between landowners, state agencies (e.g. Conservatoire), and municipal bodies to foster a shared strategic vision that goes beyond the current management plan horizon.

These efforts, if aligned with the adaptive structure of the current management plan, could help unlock greater systemic coherence and increase the legitimacy, effectiveness, and resilience of governance framework for restoration in the Rhône Delta.

5.3 Analysis of Governance actions at Adaptation Measure level

5.3.1 Adaptation Measure Category 1: (Coastal) Wetland Restoration – Saltmarsh restoration through restoration of hydro-saline equilibrium

The following actions support the restoration of coastal wetlands at the Rhône Delta by advancing knowledge-sharing, participatory planning, strategic coordination, and transparency in management. The emphasis is on improving public understanding of restoration benefits, strengthening multi-stakeholder collaboration, and ensuring governance mechanisms are aligned with the adaptive management of the saltmarsh ecosystem. The actions included have been developed with a focus to enable the **restoration of hydro-saline equilibrium in saltmarsh systems**, aiding in the delivery and upscaling Nature-based Solutions (NbS) in the Rhône Delta through improved planning, knowledge-sharing, and participatory implementation under the newly validated management plan.

RHÔNE DELTA ACTION 1: Lack of knowledge of the consequences and benefits of restoration is apparent.

This action addresses the need to build greater awareness among stakeholders and the public about the ecological and socio-economic benefits of wetland restoration. Although monitoring is ongoing and data are being analysed, results are not yet effectively communicated. Improving information dissemination can increase public support and informed engagement in saltmarsh restoration.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• Long-term monitoring data exist but need to be more widely shared with the general public to influence perceptions and build legitimacy for restoration. • Continuous awareness raising is necessary with the local government as there have been changes in staff. • Still ongoing monitoring activities and analysis processes.	• Limited outreach and public access to the results of monitoring efforts.

RHÔNE DELTA ACTION 5: Contribute to the definition and implementation of a new management plan for the site, which would notably better integrate the opinion of local populations (collaboration with WaterLANDS project).

This action played a central role in shaping an adaptive management framework for saltmarsh restoration by embedding local population feedback into restoration planning. It reflects a shift toward more integrated, participatory governance of wetland systems and ensures that restoration efforts align with social as well as ecological needs.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING AND DIRECTION**

ENABLERS	BARRIERS
• A strong, validated management plan based on adaptive management principles: the management plan has been validated and is currently being implemented, which has already led to the funding of a new restoration project. • The collaborative process provided for additional stakeholder buy-in.	• No major barriers reported for this completed action. • Changes in the local government and funding schemes have had an impact on the implementation of the management plan.

Illustration of the very high salinities that can occur on the site, with possible salt crystallisation.
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RHÔNE DELTA ACTION 6: Promote and increase engagement with the governing committees or regulatory authorities and share lessons-learnt regarding possible improvements and integrations of these into policy or regulatory structures.

This action focuses on enhancing governance alignment for saltmarsh restoration by increasing policy feedback loops between project-level implementation and regulatory bodies. This integration helps consolidate institutional support for NbS and ensures long-term uptake of restoration lessons into regional frameworks.

GOVERNANCE INDICATOR: **COORDINATION AND COHERENCE**

ENABLERS	BARRIERS
• A strong, recently validated management plan offers a clear structure for sharing lessons learned supported by an additional funded restoration project.	• Uncertainties persist around future funding and governance responsibilities due to institutional changes.

RHÔNE DELTA ACTION 7ii, 7iv: Continue the implementation of the new management plan to ensure more participation and communication amongst different stakeholders and thus reduce the conflicts. Also make the modelling and other studies more accessible to the general public with a more developed public outreach plan.

This action strengthens transparency and inclusion around wetland restoration efforts by embedding communication and public engagement into the ongoing implementation of the new management plan. Making technical outputs (e.g., hydrological modelling) accessible fosters wider stakeholder understanding and helps resolve tensions around water management and NbS approaches.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• Stakeholders were strongly involved in developing and validating the management plan.	• Post-validation engagement is weaker due to institutional uncertainties, particularly the weakened capacity of the Natural Park. • Making technical studies more digestible remains a key challenge for reaching the broader public. • Uncertainties behind scientific studies and especially models can be difficult to explain to stakeholders and wider audience.

Illustration of the very low water depths that can occur on the site, with the possibility of most areas drying up for part of the year.

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5.3.2 Adaptation Measure Category 3: Restoring Hydraulic Connectivity – Restoration of hydraulic continuity and saline equilibrium

This category includes governance actions that support the **restoration of natural water flow dynamics and hydro-saline balance** across the Rhône Delta. **Re-establishing hydraulic connectivity** is essential for reversing decades of canalisation, embankment, and saline intrusion that have degraded wetland habitats and disrupted ecological function. Governance actions here aim to build stakeholder consensus, institutional coordination, and adaptive capacity to manage complex interventions such as dyke regulation, managed inundation, and reconnection of natural water routes. These actions are particularly strategic in a context where competing land uses and shifting salinity patterns require collaborative, long-term governance approaches that balance ecological, agricultural, and flood management priorities.

RHÔNE DELTA ACTION 2: The optimal role of some of the members of the steering committee that manages the site is at risk due to governance and financial limitations.

This action targets a core governance vulnerability that threatens the sustained implementation of hydraulic restoration efforts. When the long-term roles of key actors—such as the Natural Regional Park—are not secured, continuity in water management coordination and decision-making is jeopardised. Stable leadership is essential to ensure the adaptive control of hydrological systems, such as seasonal water inflows or dike operation regimes.

GOVERNANCE INDICATOR: **ACCOUNTABILITY**

ENABLERS	BARRIERS
• The Park's co-management role is still recognised and functioning in the current framework.	• The role of the Natural Regional Park is being questioned over the long term, creating uncertainty about its continued coordination function: this situation has led to delays in the revision of the charter and weakened daily engagement by the Park, particularly in tasks related to water management.

RHÔNE DELTA ACTION 8: Implement the identified governance reforms according to the improvement planning.

This action is strategic for scaling and institutionalising hydraulic restoration interventions through the formalisation of governance reforms. As changes to water governance (e.g. water level regimes, dike removal/modification) often face social and administrative resistance, implementing structured governance improvements—especially via the management plan—provides a stable platform for advancing hydrological reconnection goals.

GOVERNANCE INDICATOR: **GOVERNANCE STRUCTURE AND LEGAL ALIGNMENT**

ENABLERS	BARRIERS
• The reform is being rolled out in line with the new management plan.	• Uncertainty persists around long-term governance arrangements due to political and institutional shifts, especially if state or park-level leadership changes.

5.3.3 Remaining Governance Actions: Project Implementation and Governance Systemic Transformation

In the context of Rhône Delta, these remaining actions basically address legal alignment, accountability, coordination, funding structures, and the integration of restoration priorities into formalised management frameworks.

RHÔNE DELTA ACTION 3: Increase stakeholder engagement.

This action enables all adaptation measures by broadening the base of support for restoration implementation. It ensures that diverse land users and interest groups (e.g., farmers, hunters, municipalities) are involved in co-designing restoration-compatible water and land-use regimes. The action can be operationalised through forums and structured dialogues. However, the process requires sustained funding to maintain momentum—highlighted by the expert as a current limitation. An important enabler is that commitment has already been initiated through the management plan, providing a foundation for coordinated action. However, the absence of funding remains a major barrier to moving from planning to effective implementation.

RHÔNE DELTA ACTION 4i and 4ii: Find additional funding for the Natural Regional Park staff to ensure their role by transferring some of the roles of "weaker" partners to other stakeholders and finding additional funding for the external partner to continue community and stakeholder participation.

This action is fundamental to enable implementation of any measure by stabilising the governance architecture behind it. Adaptive water management and wetland restoration require permanent, coordinated capacity—which can become vulnerable due to short-term funding cycles. Carrying out this action involves securing diversified funding streams to maintain park staff roles and external facilitation. Two funding proposals have already been submitted, which may help address this barrier. A key enabler is the availability of funding resources, which facilitates the planning and implementation of restoration actions. On the other hand, the absence of funding remains a critical barrier, limiting both the scope and continuity of these efforts.

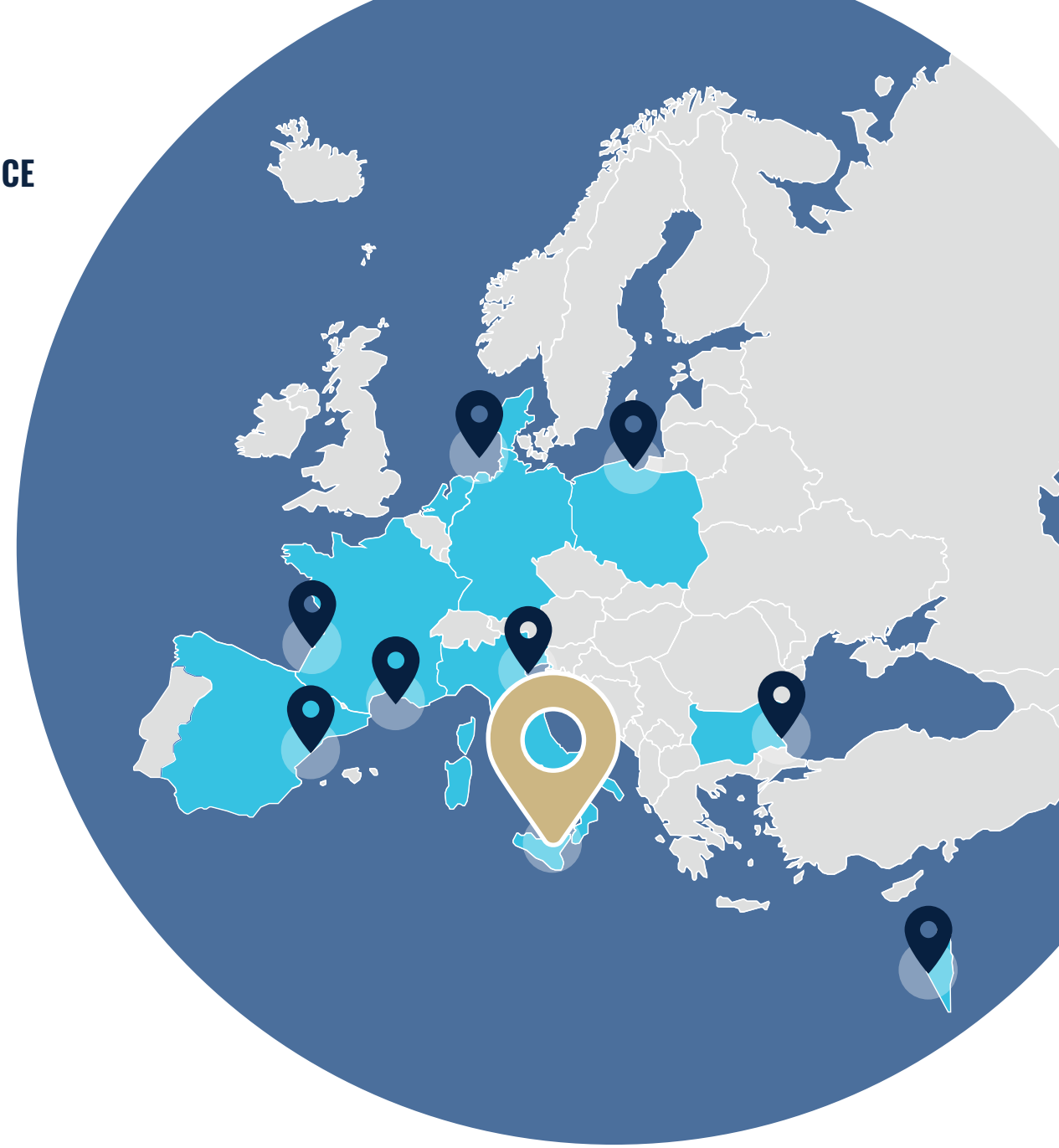
RHÔNE DELTA ACTION 7i and 7iii: Organise and promote consultations with the local stakeholders (use external expertise where warranted) while also increasing the visibility of the active stakeholders to improve credibility and create more incentives.

This action operationalises inclusive governance, allowing for the collective design and support of restoration activities across the delta. It can be used to mitigate conflict and elevate key actors who can champion hydraulic restoration or water-level management practices. Consultations have been well integrated in the management plan development but will require ongoing funding and coordination to remain effective through implementation. An important enabler is the site's participation in other restoration projects across the Rhône Delta, which fosters knowledge exchange and regional coordination. However, a key barrier is the lack of support from other stakeholders or decision-makers in the Rhône Delta who are responsible for similar actions, such as coastal management or territorial coordination.

RHÔNE DELTA ACTION 9: Invest in stakeholder management and communications through actions that enhance transparency, accountability, and participation in the project.

This cross-cutting action supports the implementation and upscaling of all measures by maintaining a participatory culture throughout the project lifecycle. It sustains trust and reduces risks of backlash during adaptive changes to water regimes or land use. While identified as a cyclical action, it depends heavily on continued external funding to maintain engagement channels beyond planning phases.

PILOT SITE GOVERNANCE BRIEFS



REST-COAST

6. SICILY MED ISLAND

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With collaboration from pilot site teams

July 2025

Funded by the European Union

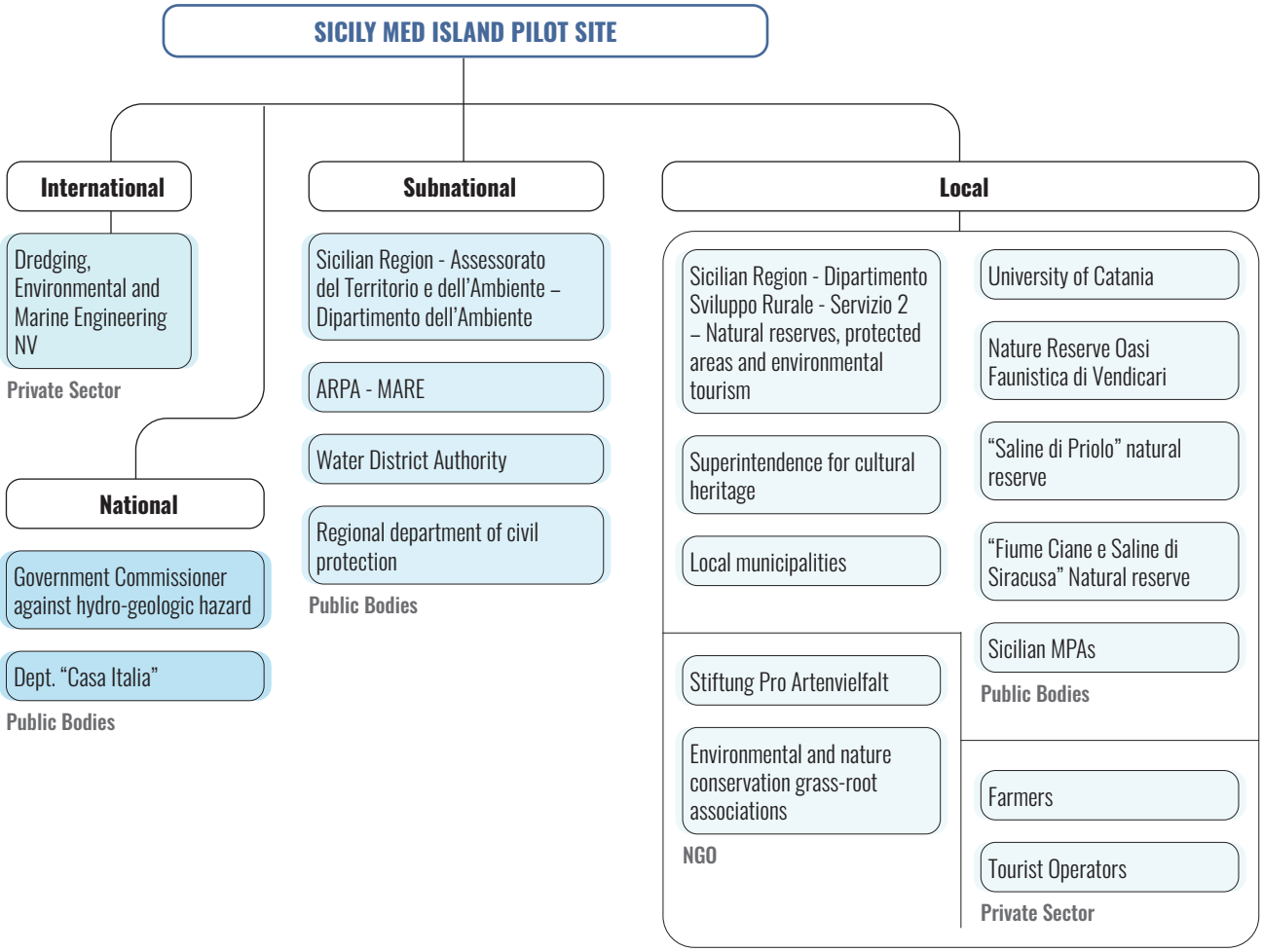
6. SICILY MED ISLAND

The Sicily Med Island Pilot Site features a multilevel governance framework that integrates actors across all levels (Figure 6.1.). Public institutions, both national and subnational, play a central role in environmental governance, policy-making, monitoring, and risk management. At the local level, academic institutions and public and private protected areas are directly involved in resource management and research. NGOs and grassroots associations contribute to conservation and community engagement, while the private sector, including farmers and tourism operators, plays a key economic role, also at the international level.

6.1 Pilot-wide governance framework: State of play and analysis of roadmapped actions

The varied progress observed across the governance criteria for the Site highlights the early but promising nature of its governance transformation process, set within a context of fragmented institutional responsibilities and uneven stakeholder engagement. The analysis reveals that while incremental gains have been achieved in collaboration and early-stage planning, the Pilot still faces significant challenges in operationalizing these advancements into a cohesive and durable governance framework.

Figure 6.1. Stakeholder map for the Sicily Lagoon Pilot Site.



Regarding the governance criteria (Table 6.1. and Figure 6.2.), several categories demonstrated no measurable improvements, such as one of the lower performing indicators, "*Strategic Vision, Learning, and Direction*," which remained stable at 20% from 2022 to 2024, similarly to "*Recognition of Tenure Rights*" at 45% or "*Accountability*" at 40%. This aligns with the early steps being taken to formalize strategic coastal restoration planning and the installation of monitoring systems to support Nature-based Solutions, though the results have not yet materialized in score improvements. "*Governance Structure and Legal Alignment*" slightly decreased (–2%), reflecting that although there is willingness among key institutions to collaborate within the CORE-PLAT, long-term commitments remain uncertain. Notably, both "*Devolution*" and "*Inclusive and Effective Decision-Making*" indicators remained unchanged, indicating that stakeholder cooperation and regional coordination efforts are still at a formative stage.

Conversely, some indicators did not show improvement over the two-year period. "*Diversity of Knowledge, Cultures, and Institutions*" and "*Coordination and Coherence*" both remained stable at lower values (20% and 40% respectively), highlighting ongoing challenges in integrating diverse actors and aligning strategies among fragmented stakeholders. "*Grievance and Conflict Resolution*," the only indicator showing a significant decline, dropped by –20%, underscoring rising tensions or the lack of effective mechanisms to mediate stakeholder disputes.

The Site has been assigned a total of **15 governance road-mapped strategic actions** (Figure 6.3.), of which approximately 60% are either initiated, ongoing, or almost completed, indicating reasonable traction on foundational governance tasks. Most of these advancing actions correspond to improvements in stakeholder engagement, awareness-raising, and restoration-related outreach, which directly relate to the "*Diversity of Knowledge*" and "*Inclusive Decision-Making*" criteria. However, several key actions—particularly those tied to "*Accountability*"—remain not feasible at this stage, due to institutional fragmentation and the lack of a formalized regional governance framework. Overall, while progress has been made, the Pilot Site's governance transformation is starting to show and is at an encouraging stage.

Table 6.1. Results from governance self-assessment at Sicily Med Island Pilot Site by criteria in 2022 and 2024.

GOVERNANCE CRITERIA	Performance Rates		Variation from 2022 to 2024
	2024	2022	
1. Governance Structure and Legal Alignment	40%	42%	-2%
2. Inclusive and Effective Decision-Making	50%	50%	0%
3. Recognition Of Tenure Rights	45%	45%	0%
4. Diversity Of Knowledge, Cultures and Institutions	20%	20%	0%
5. Devolution	45%	45%	0%
6. Strategic Vision, Learning and Direction	20%	20%	0%
7. Coordination and Coherence	40%	40%	0%
8. Accountability	40%	40%	0%
9. Grievance and Conflict Resolution	50%	70%	-20%
Average Performance	**39%**	**41%**	**-2%**

Figure 6.2. Governance Indicators/Criteria visualization. Comparison between 2022 and 2024 at Sicily Med Island Pilot Site.

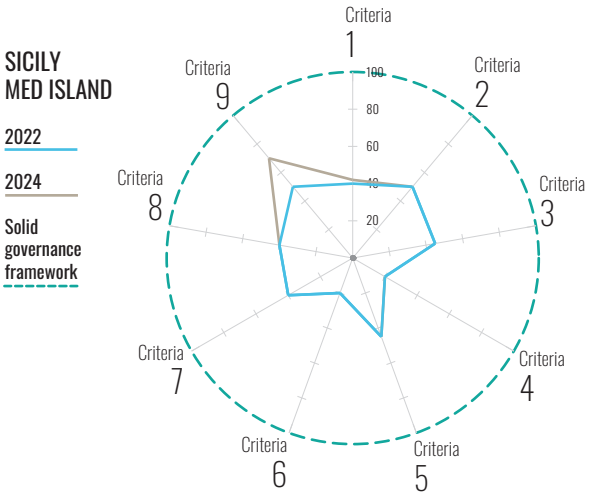
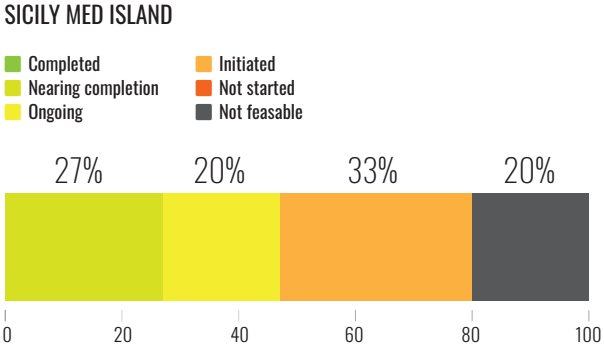


Figure 6.3. Progress on implementation of Roadmap actions in Sicily Med Island Pilot Site.



From a **stakeholder** perspective, the Pilot Site is taking steps toward more inclusive engagement, though it remains uneven. Through CORE-PLAT activities, cooperation among institutional actors is strengthening, with joint events and bilateral discussions contributing to a shared baseline of understanding. However, engagement of economic actors such as farmers and tourism operators is still limited, and municipalities show varying levels of participation. Importantly, the inclusion of farmers is planned for a later phase, indicating that full stakeholder integration remains a work in progress. This gradual but expanding participation is critical to shifting toward a governance model that values ecological integrity as a foundation for sustainable economic development in the region.

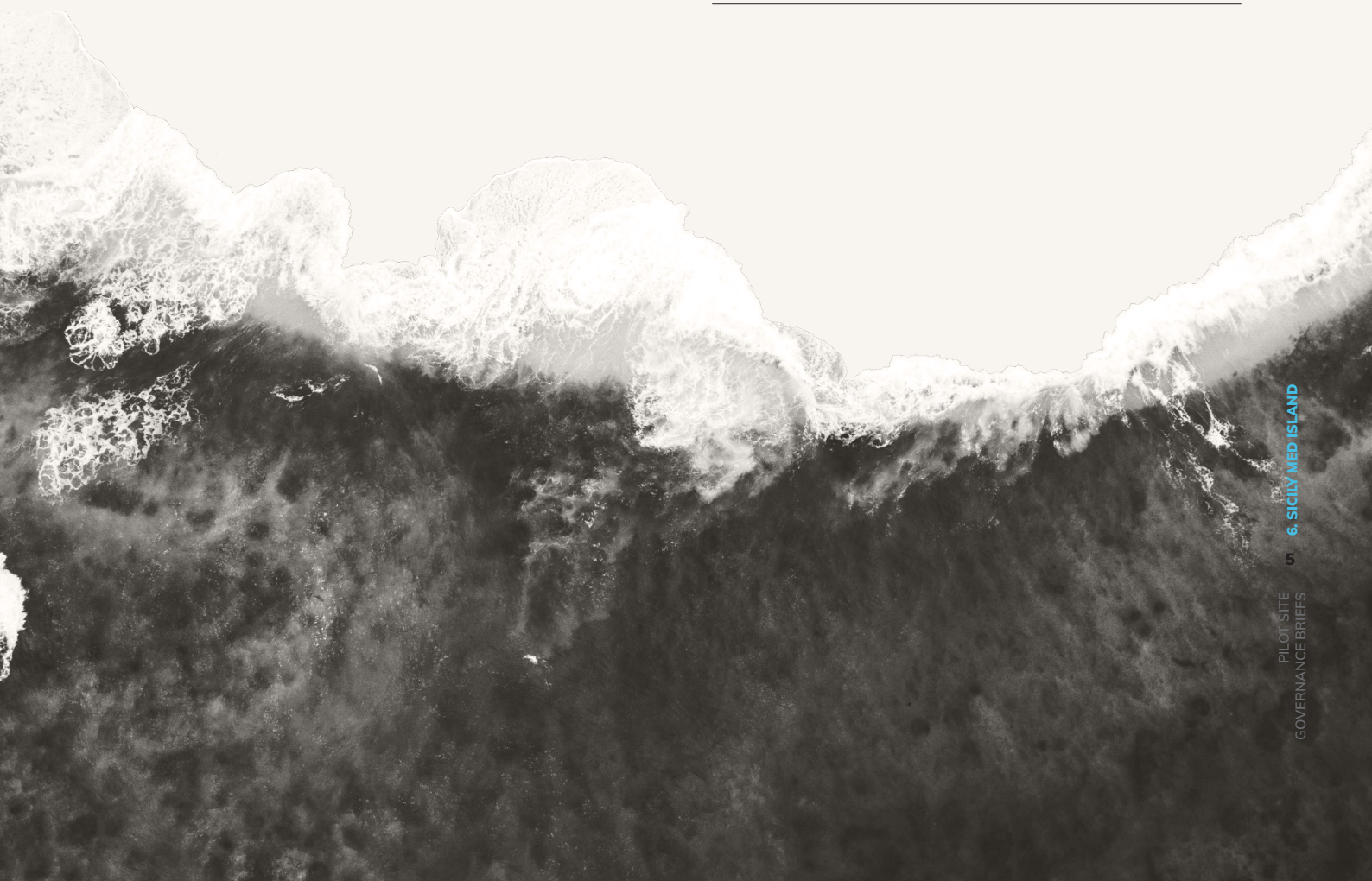
The governance transformation actions in the Pilot Site are progressing with a focus on laying the groundwork for coordinated coastal restoration through strategic visioning, stakeholder engagement, and knowledge exchange. Key enablers include the willingness of regional authorities and site managers to engage collaboratively within the CORE-PLAT platform, alongside a shared interest in biodiversity protection and Nature-based Solutions (Table 6.2.). Initiatives such as the installation of monitoring networks and public dissemination events (e.g., summer schools and workshops) have fostered a growing alignment around the use of ecological data to support restoration planning. Additionally, projects like the Interreg Italia-Malta WETWISE project, which kicked off on the 2nd of May 2025 and will last 30 months, are seen as promising drivers for scaling up coordinated efforts and embedding NbS within regional policy instruments. Notably, various site managers and local authorities are beginning to converge around common goals, particularly where regional planning frameworks support biodiversity restoration.

Despite these enabling conditions, the Site faces a few persistent **barriers**. These include limited long-term commitment from key actors, fragmented governance structures, and a lack of formalized cooperation agreements. Coordination remains weak among public departments, particularly with entities such as Civil Protection and the Hydro-Geological Risk Commissioner, who have shown less engagement in NbS discourse. Additionally, political management of regional funding leads to fragmented resource allocation, which constrains the integration of restoration actions across sectors. Technical gaps, especially in engineering for risk reduction and formal accountability mechanisms, further limit the site's ability to institutionalize governance improvements. Moreover, while the Restoration Contract has gained preliminary support, its implementation remains stalled due to undefined specifics and variable actor involvement.

Banquettes of *Posidonia oceanica* on the beach.

Table 6.2. Enablers and Barriers identified in Sicily Med Island through the Roadmap implementation.

ENABLERS	BARRIERS
• **Institutional Willingness and Collaboration**: Regional authorities and local site managers have shown openness to cooperation, especially within the CORE-PLAT platform.	• **Fragmented Governance and Lack of Coordination**: Scattered mandates, poor inter-agency coordination, and inconsistent communication among regional offices, municipalities, and public bodies.
• **Stakeholder Engagement and Knowledge Exchange**: Public events, summer schools, and workshops have enhanced dialogue and knowledge-sharing among actors from academia, management, and civil society.	• **Lack of Long-Term Commitment**: Uncertainty around sustained institutional engagement and absence of formal cooperation mechanisms or restoration contracts.
• **Strategic Project Opportunities**: The proposed Interreg Italia-Malta project and other transboundary initiatives could support strategic planning and provide funding for NbS implementation.	• **Political and Funding Constraints**: Regional funds are distributed via politically driven, fragmented processes that do not promote integrated restoration planning.
• **Shared Environmental Objectives**: There is a strong convergence of interest among authorities and site managers around biodiversity conservation and coastal restoration.	• **Limited Participation of Key Economic Actors**: Farmers, tourism operators, and some municipalities show little involvement, with plans to include them delayed to the project's later stages.
• **Initial Monitoring and Modelling Capacity**: A basic but functioning environmental monitoring system has been installed (since Nov 2023), providing early data to support evidence-based planning.	• **Technical Gaps and Capacity Deficits**: While ecological knowledge is strong, there is limited expertise in engineering solutions for risk reduction using NbS.
	• **Insufficient Accountability Mechanisms**: Roles and responsibilities remain vaguely defined, and mechanisms to ensure accountability or monitor compliance are still lacking.



6.2 Recommendations for strengthening progress on Roadmapped Actions

The Sicily Med Island Pilot Site faces a few challenges regarding governance, particularly visible in the number of roadmap actions that remain "Not Started" or marked as "Not Feasible" due to either lack of formalization, limited stakeholder engagement, or institutional fragmentation. These stalled actions expose a few systemic difficulties, such as the absence of clear mandates across overlapping departments in the region, limited coordination among municipal actors, and insufficient integration of economic sectors like tourism and agriculture into restoration planning. While there is growing interest from environmental authorities and some local site managers, many of these actions require long-term structural commitment, cross-sectoral collaboration, and more formalized governance arrangements to move forward.

A closer review of these actions points to several interconnected barriers—including a lack of formal cooperation frameworks, limited capacity or interest from non-environmental actors, and weak alignment between restoration objectives and regional policy instruments. Strategic use of the existing momentum—such as the demonstrated effectiveness of monitoring systems and joint dissemination events—could be leveraged to build trust and operational clarity among actors.

Ultimately, although the Site has advanced considerably in awareness-raising and stake-holder convening, realizing the full potential of its governance transformation will require formalization of cooperation structures, institutional commitment to cross-sectoral coordination, and sustained political and financial support. These steps are essential not only to address currently uninitiated actions but also to safeguard the progress already made through early-stage implementation efforts under the REST-COAST project.

Marshes in Sicily.

6.3 Analysis of Governance actions at Adaptation Measure level

6.3.1 Adaptation Measure Category 1: (Coastal) Wetland Restoration

This category addresses governance actions that directly support the restoration and stabilisation of saltmarshes, seagrass meadows, and dune vegetation in the Pilot Site. These nature-based interventions are essential for enhancing coastal resilience, improving water quality, promoting biodiversity, and supporting long-term adaptation to climate threats such as sea-level rise and erosion.

In the context of the Pilot, while local-scale restoration actions are feasible and are generally supported by interested authorities, upscaled, coordinated interventions are at the moment not supported by a formal plan for large-scale, long-term sustainable restoration. As such, governance efforts under this category are focused on building the institutional foundations and participatory frameworks needed to ensure the effective implementation upscaling and long-term viability of coastal wetland restoration. The governance actions below reflect how stakeholder engagement, scientific monitoring, and strategic coordination can be deployed to embed nature-based restoration into the regional landscape and planning culture.

This category also includes overarching governance actions that enable long-term implementation and upscaling of restoration in the Sicily Lagoon. These actions address structural governance limitations by improving transparency, coordination, legal clarity, institutional capacity, and participatory frameworks. Although not directly linked to individual adaptation measures (such as marsh restoration or seagrass transplantation), these measures strengthen the enabling conditions for all Nature-based Solutions deployed in the lagoon and improve the resilience of the overall governance framework of the Site.

SICILY ACTION 12: Continue to collect data through monitoring/modelling on the effectiveness of coastal restoration and integrate findings in communications and outreach efforts.

This action is critical for ensuring that coastal wetland restoration efforts are grounded in evidence and adaptive management. By integrating scientific data on lagoon water levels, groundwater, and meteorological conditions into broader communication strategies, the action builds a robust case for expanding wetland restoration practices—including saltmarsh and seagrass interventions—across the Pilot Site. The monitoring network, operational since November 2023, enables validation of NbS effectiveness and serves as a key enabler for mainstreaming these interventions into policy dialogues. As a result, the action strengthens the legitimacy of NbS among institutional actors and enhances the technical capacity needed to justify upscaling coastal wetland interventions beyond the project phase.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**

ENABLERS	BARRIERS
• Functioning environmental monitoring system (since Nov 2023), collecting real-time data. • Integration of monitoring with modelling to support NbS demonstration.	• Limited quantity of data available due to recent installation and short monitoring timeframe.

SICILY ACTION 10i, 10ii: Promote and increase stakeholder engagement by organising public events for sharing stakeholder and research knowledge as a starting point for setting a common baseline on problems and interests. Also, by supporting the exchange of information among different ongoing initiatives that require accountability (e.g., Life projects/ Interreg and other transboundary programmes).

This action fosters a culture of collaboration and knowledge-sharing, which is foundational to the long-term implementation of wetland and seagrass restoration. By convening public events and showcasing hands-on restoration and modelling activities, it builds mutual understanding of ecological challenges and feasible solutions. The action is particularly relevant to the Pilot, since the participatory baseline is still in development. Dissemination events (e.g., the 2023 kick-off meeting and 2024 summer schools) have provided a neutral space for discussing restoration feasibility, increasing the credibility of interventions such as dune and seagrass restoration, and aligning stakeholder expectations.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• Events and summer schools have attracted participation from key stakeholders and authorities. • Demonstration of restoration activities linked to WP1 and WP2 increases stakeholder awareness.	• Not specified, but ongoing coordination and follow-up beyond events will be required for sustained impact. • Some stakeholders have been historically opposing to environmental conservation actions, this might rise as a future barrier for restoration upscaling.

SICILY ACTION 8: Promote coordinated actions of stakeholders on NbS implementation within the next available funding schemes.

This action aims to support collaboration among stakeholders for the practical deployment of nature-based interventions—including wetland and seagrass restoration. It recognises that the success of these restoration measures depends on collaborative planning and unified funding strategies. The action is especially important in the Sicily Lagoon context, where current funding mechanisms can be fragmented and politically managed. By fostering early-stage coordination among site managers, researchers, and regional authorities, this action paves the way for more strategic and ecologically aligned restoration funding.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• CORE-PLAT has facilitated early cooperation among site managers and universities. • Stakeholders are beginning to coalesce around a shared, knowledge-based restoration strategy.	• Regional funds are still allocated through politically fragmented processes. • Existing structures do not yet promote collaborative or integrated project funding.

Prairies of *Salicornia perennas* at Morghella Lagoon.

6.3.2 Adaptation Measure Category 3: Restoring Hydraulic Connectivity

This category addresses governance actions that support the restoration of ecological and hydrological connectivity in the Sicily Lagoon system. Specific interventions under this adaptation measure include channel dredging to improve water circulation and barrier systems with gates to regulate lagoon water levels. These physical interventions aim to reverse the effects of hydro/morphological alterations and improve ecosystem functionality, particularly in vulnerable brackish environments.

The implementation of physical connectivity measures must be accompanied by strong governance foundations to ensure they are ecologically informed, integrated into risk management plans, and supported by local institutions. The action below directly enables this by building awareness, embedding climate adaptation into institutional discourse, and involving relevant authorities such as the Water District Authority—a key actor for formalising and financing connectivity-related restoration through Flood Risk Management Plans (FRMPs).

SICILY ACTION 7: Identify risks induced by climate change threats and needs for NbS within local municipalities/site managers, by involving the Water District Authority on the adoption of NbS for within Flood Risk Management Plans.

This action plays a strategic role in advancing the implementation of hydraulic connectivity measures in the Sicily Lagoon. By fostering collaboration between local site managers, municipalities, and the Water District Authority, the action creates an institutional entry point for embedding channel dredging and lagoon regulation infrastructure within broader climate adaptation and flood risk frameworks.

The action ensures that physical connectivity improvements are not isolated technical fixes, but rather part of an integrated regional strategy for risk reduction through Nature-based Solutions. Aligning hydraulic interventions with Flood Risk Management Plans (FRMPs) also enhances their financial and policy legitimacy, making it more feasible to scale up connectivity restoration within the scope of regional environmental and climate adaptation policies.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**	
ENABLERS	**BARRIERS**
• Natural Water Retention Measures (NWRMs) are being investigated as potential tools for flood control, providing technical precedent and institutional relevance for lagoon connectivity improvements. • Municipalities and site managers are increasingly aware of the role NbS can play in resilience and water regulation.	• Although not formally listed, the still weak operational collaboration with the Water District Authority and absence of a shared long-term vision could limit uptake. • Variable institutional readiness across municipalities may delay formal adoption of such measures into FRMPs.

***Maritime rupia* at Morghella Lagoon.**

6.3.3 Adaptation Measure Category 4: Artificial Habitat Creation

This category addresses governance actions that support the design, implementation, and stewardship of artificial ecological infrastructure, particularly artificial bird islands, as part of broader coastal restoration strategies in the Sicily Lagoon. These interventions aim to restore lost or degraded habitats for key species, enhance biodiversity, and provide multifunctional ecological services in heavily modified or human-influenced coastal systems. In the Pilot Site, while no governance action currently targets the design or construction of engineered habitats directly, stakeholder engagement actions have created the social and institutional conditions necessary for such measures to emerge (and guarantee their long-term sustainability and effectiveness, such as maintaining/stabilizing artificial islands within the context of climate change). In particular, multi-actor events and public engagement platforms are beginning to foster a common understanding of NbS—including the potential of artificial habitat creation—and are involving key institutional and civil society actors such as site managers, universities, and NGOs.

SICILY ACTION 10i, 10ii: Promote and increase stakeholder engagement by organising public events for sharing stakeholder and research knowledge as a starting point for setting a common baseline on problems and interests. Also, by supporting the exchange of information among different ongoing initiatives that require accountability (e.g., Life projects/Interreg and other transboundary programmes).

This action plays a role in enabling future artificial habitat creation efforts by fostering the knowledge exchange and institutional collaboration needed to legitimise and design such interventions. Public events convened through CORE-PLAT and affiliated programmes increase stakeholder familiarity with NbS concepts, including habitat engineering, and promote the involvement of NGOs, universities, and site managers in emerging habitat design strategies. As habitat creation in the Sicily Lagoon is likely to involve sensitive ecological zones and overlapping institutional mandates, these events are essential for establishing shared baselines and securing early buy-in for future artificial habitat initiatives.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• High-profile events (e.g., summer schools, public dissemination) have successfully involved regional authorities, universities, and conservation actors. • Public discussion of NbS fosters broader understanding of and openness to novel ecological infrastructure like artificial islands.	• Lack of direct engagement with some key stakeholders (e.g., municipalities, farmers) limits immediate consensus on spatially transformative interventions like artificial habitat construction.

Porphyrio porphyrio.
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6.3.4 Adaptation Measure Category 6: Flood Protection

This category addresses governance actions that support the institutional integration of Nature-based Solutions into strategies for flood risk management and climate adaptation. In the Pilot Site, the primary governance pathway for flood protection involves incorporating NbS into Flood Risk Management Plans (FRMPs), particularly through Natural Water Retention Measures (NWRMs) and hydrological regulation within the lagoon system.

Although physical flood protection interventions have not yet been implemented or formally planned, governance actions are beginning to lay the groundwork for future alignment between restoration efforts and regional climate resilience objectives. The involvement of the Water District Authority and local municipalities is a critical step toward embedding NbS into flood management policy and risk frameworks, which is essential for scaling restoration with co-benefits for safety and resilience.

SICILY ACTION 7: Identify risks induced by climate change threats and needs for NbS within local municipalities/site managers, by involving the Water District Authority on the adoption of NbS within Flood Risk Management Plans.

This action is a direct enabler for the long-term alignment of restoration and flood protection goals. By involving the Water District Authority and promoting the integration of NbS into FRMPs, it creates a governance bridge between climate adaptation and ecological restoration. This is particularly relevant in the Sicily Lagoon, where flood control and water regulation are deeply interconnected with restoration measures such as channel dredging and seagrass stabilisation. This action is not only relevant for hydraulic connectivity but also explicitly aligns with flood risk governance frameworks, providing an institutional pathway for mainstreaming NbS as part of regional flood protection planning.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**	
ENABLERS	**BARRIERS**
• NWRMs are under investigation as a strategy for controlling flood risk. • Water District Authority identified as a key stakeholder in FRMP integration. • Demonstration of flood protection capabilities of coastal habitats might ignite consensus on opposing stakeholders	• No clear information provided on regulatory readiness or implementation mechanisms. • The extent of engagement with the Water District Authority is not described in detail.

Athyoca nyroca.
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6.3.5 Remaining Governance Actions: Project Implementation and Governance Systemic Transformation

Within the context of the Sicily Pilot Site, where governance has been at times impacted by fragmentation, informal cooperation, and uneven stakeholder participation, these system-level actions play a central role in unlocking the potential of Nature-based Solutions. By improving coordination, clarifying institutional roles, and enhancing stakeholder cooperation, the actions listed here support the effective delivery of restoration measures such as seagrass and saltmarsh recovery, channel connectivity improvements, and flood risk management via the application and upscaling of NbS practices.

SICILY ACTION 1: Improve coordination among regional government (several offices involved), local municipalities, public and private site managers.

This action supports all adaptive measures by strengthening horizontal and vertical coordination across public bodies and site operators. Restoration activities in Sicily—whether involving coastal wetlands, hydrological infrastructure, or dune systems—require multi-agency oversight. Improved coordination ensures measures are coherently planned, permitted, and maintained across sectors.

SICILY ACTION 2: Increase sharing of knowledge, discuss about problems and agree upon common solutions across different actors (e.g., policymakers, municipalities, farmers, environmental NGOs, etc.).

This action builds a common understanding of site challenges and shared restoration goals among a diverse stakeholder set. Its relevance spans all adaptive measures, helping to reduce resistance to physical interventions (e.g., channel dredging or sand nourishment) and enabling more informed design and local support through cooperative problem-solving.

SICILY ACTION 3: Increase cooperation between government and stakeholders, which is at the lowest possible scale.

By strengthening local-level engagement and decentralising restoration governance, this action supports more context-sensitive and participatory implementation of measures. It is particularly important for wetland and seagrass restoration, where small-scale land-use or operational conflicts may arise without active municipal and community participation.

SICILY ACTION 4: Coordinate support and management at regional scale of coastal restoration initiatives.

This action strengthens top-down strategic alignment and planning, which is essential for scaling up coastal restoration from pilot activities to formal regional initiatives. It is especially relevant to future regional replication of hydraulic and ecological interventions, such as those involving water level regulation or saltmarsh re-establishment.

SICILY ACTION 5: Improve coordination and coherence by addressing the fragmented stakeholder framework and the lack of coordination among different public departments involved in natural resource management and protection. The action should focus on fostering collaboration, streamlining strategies, and building the capacity of relevant departments to ensure effective and sustainable management of natural resources.

This action creates the institutional clarity needed for multi-disciplinary measures such as flood protection through NbS. When different departments (e.g., environment, civil protection, water) coordinate, it becomes easier to implement integrated interventions that combine risk reduction with ecological outcomes.

SICILY ACTION 6: Increase accountability and roles need to be made clear and accessible to stakeholders. *(Currently marked as Not Feasible)*

Although flagged as not currently feasible, this action highlights a foundational governance challenge. Without clear responsibilities and accountability, adaptive measures like channel management or seagrass monitoring may fail to receive long-term oversight. Its eventual implementation will be essential to sustaining NbS investments over time.

SICILY ACTION 9i, 9ii: Discuss with relevant regional officers (e.g., Water Authority, Civil Protection, Agriculture Dept, etc.) about EU regulation on climate change adaptation. This should be done by establishing a local CORE-PLAT/Signature of a Coastal Restoration Contract, improving overall coordination and coherence and by interacting with decision-makers at regional and local scales to improve awareness and improve overall coordination and coherence.

This action formalises the governance infrastructure necessary for scaling up all adaptive measures. By embedding EU restoration objectives into regional policy through a Restoration Contract, the action lays the legal and strategic foundation for long-term implementation of NbS, including those requiring intersectoral coordination and external funding.

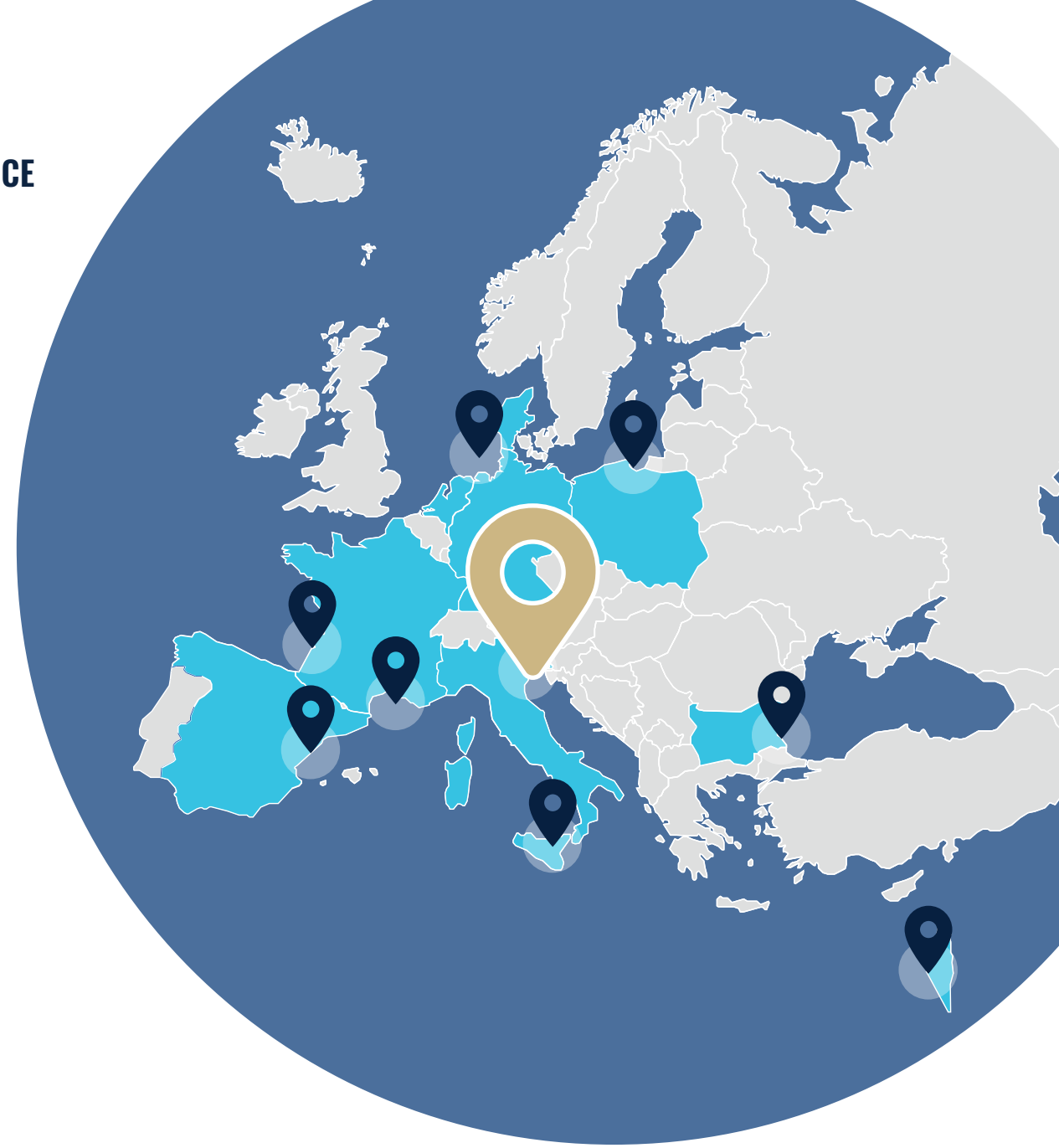
SICILY ACTION 10iii: Promote and increase stakeholder engagement by setting up bi-lateral discussions with non-collaborative stakeholders (mainly in municipalities, regional government and farmers) pushing forward the idea that good ecological status leads to greater economic value and highlighting the link between the quality of the environment and world heritage. Conduct informative actions and gradually involve these stakeholders and local municipalities. *(Currently marked as Not Feasible)*

This action is essential for adaptive measures that depend on local land use or cooperation with economic actors, such as dune restoration or managed lagoon connectivity. Although marked not feasible, its future implementation could enable socially and economically sensitive interventions to be delivered with greater local legitimacy and support.

SICILY ACTION 11: Implement the identified governance reforms according to the improvement planning. *(Currently marked as Not Feasible)*

This action would institutionalise all the reforms discussed above. By creating mechanisms to implement governance improvements identified through the roadmap, it would enable adaptive measures to be executed more efficiently and systematically. Although not yet feasible, its activation remains a keystone for durable restoration governance in Sicily Med Island.

PILOT SITE GOVERNANCE BRIEFS



REST-COAST

7. VENICE LAGOON

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With collaboration from pilot site teams

July 2025

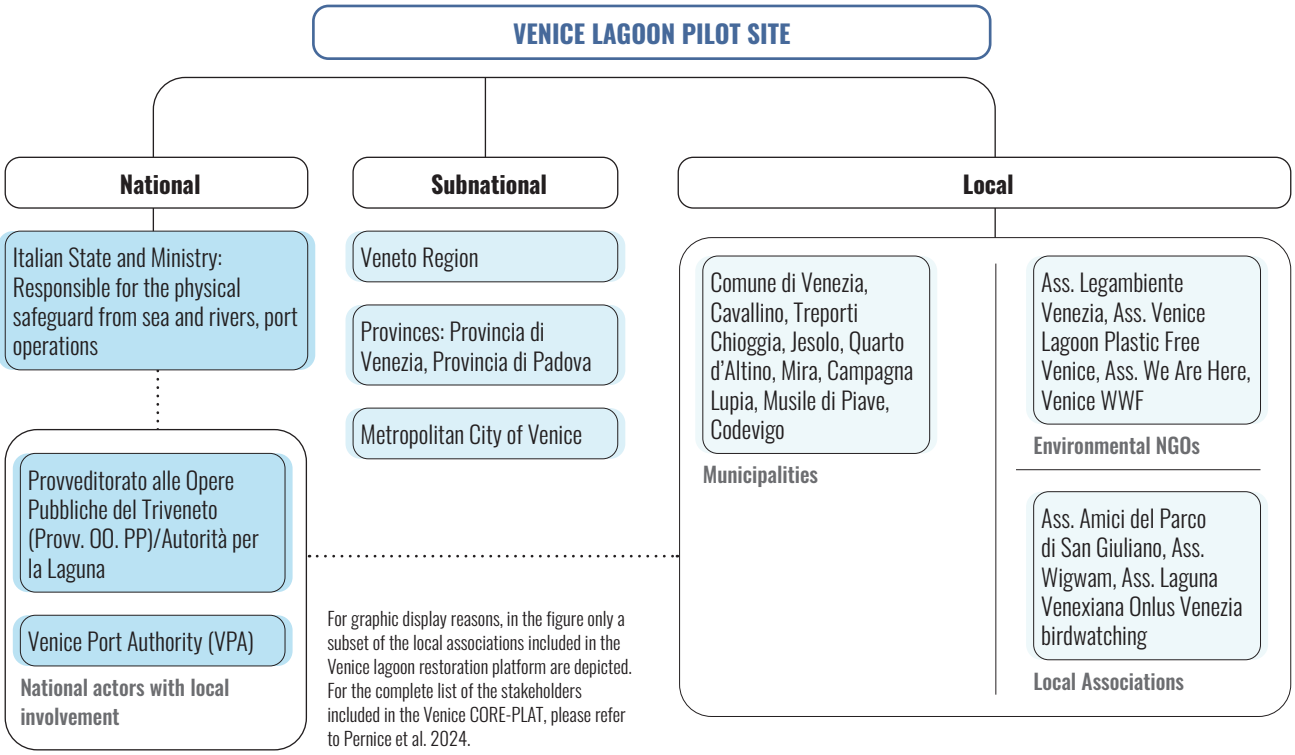
Funded by the European Union

7. VENICE LAGOON

The stakeholder map for the Venice Lagoon Pilot Site highlights a diverse and multi-level governance structure with strong local representation (Figure 7.1). At the national level, the Italian State is responsible for the physical safeguarding of the sea and rivers, and port operations. More in detail, the Provveditorato alle Opere Pubbliche del Triveneto (Provv. OO. PP)/Autorità per la Laguna, a local office of the Italian Ministry of Infrastructure and Transport (MIT), is responsible for the safeguarding and management of the Venice Lagoon, by intervening in the Lagoon with ordinary and extraordinary maintenance works, while the Venice Port Authority (VPA), is responsible for planning, coordinating, promoting and controlling port operations in the Venice Lagoon, by dredging the Lagoon canals in order to guarantee safety of navigation to ships. At the subnational level, the Veneto Region is responsible for de-pollution of the drainage basin, while three provinces (Venice, Padua and Treviso), along with the Metropolitan City of Venice, play important roles in regional planning and coordination among key actors.

At the local level, 9 municipalities (Comune di Venezia, Cavallino Treporti, Chioggia, Jesolo, Quarto d' Altino, Mira, Campagna Lupia, Musile di Piave, Codevigo) and a wide range of stakeholders are actively involved in site management and community engagement. Among these, the Municipality of Venice oversees urban restoration and social revitalization. Environmental NGOs (e.g. Ass. Legambiente Venezia, Ass. Venice Lagoon Plastic Free Venice, Ass. We Are Here Venice, WWF) contribute to biodiversity, environmental protection and safeguarding, while local associations (e.g. Ass. Amici del Parco di San Giuliano, Ass. Wigwam, Ass. Laguna Venexiana Onlus, Venezia birdwatching) foster civil participation and environmental awareness. Other local initiatives also support climate action and emergency preparedness. This broad map of public and cultural institutions, NGOs, trade associations, and the scientific community reflects the complexity and richness of the governance landscape in the Venice Lagoon, emphasizing collaboration needed across sectors and scales.

Figure 7.1. Stakeholder map for the Venice Lagoon Pilot Site.



7.1 Pilot-wide governance framework: State of play and analysis of roadmapped actions

The varied progress across different actions in the Pilot Site reflects the complexities inherent in governance transformation processes, particularly in a region with multiple overlapping interests and competencies, including ordinary laws at EU, national, subnational and municipal scale, commissarial measures, and special legislation, based on the national interest to protect Venice and its lagoon. While certain actions have made significant strides, particularly those focused on fostering collaboration and communication, others face barriers related to stakeholder interests, data transparency, and the broader regulatory framework.

Regarding the governance criteria/indicators (Table 7.1. and Figure 7.2.), "*Inclusive and Effective Decision Making*" showed the greatest improvement in metrics (3%), followed by declines in others, such as "*Devolution*" (-10%) and "*Recognition of Tenure Rights*" (-5%). "*Strategic Vision, Learning and Direction*" remained unchanged at 40%, highlighting the early-stage nature of institutional transformation efforts. This pattern is understandable given that the site is following the initial steps to meet the actions and recommendations issued to drive transformative governance. The site was provided with a total number of **28 proposed actions** in its **governance roadmap**. A review of progress on their implementation (Figure 7.3.) reveals that while many of the proposed actions are not deemed feasible (32%), over half (about 54%) are initiated or beyond in their implementation. Most actions that are underway relate to strengthening institutional collaboration, communications, and stakeholder engagement, particularly relevant to the criterion "*Diversity of Knowledge, Cultures, and Institutions*", which remains at 60%. Although no measurable change occurred in this indicator, it remains one of the best-performing governance areas along with "*Coordination and Coherence*" and "*Accountability*".

Table 7.1. Results from governance self-assessment at the Venice Lagoon Pilot Site by criteria in 2022 and 2024.

GOVERNANCE CRITERIA	Performance Rates		Variation from 2022 to 2024
	2024	2022	
1. Governance Structure and Legal Alignment	48%	50%	-2%
2. Inclusive and Effective Decision-Making	53%	50%	3%
3. Recognition Of Tenure Rights	50%	55%	-5%
4. Diversity Of Knowledge, Cultures and Institutions	60%	60%	0%
5. Devolution	50%	60%	-10%
6. Strategic Vision, Learning and Direction	40%	40%	0%
7. Coordination and Coherence	60%	60%	0%
8. Accountability	60%	60%	0%
9. Grievance and Conflict Resolution	40%	40%	0%
Average Performance	**51%**	**53%**	**-2%**

The Venice Pilot Site's progress in implementing its governance transformation roadmap has been influenced by several enablers and barriers, which play critical roles in shaping the effectiveness and success of restoration efforts. By analysing these factors, the Pilot can gain insights into the underlying dynamics that facilitate or hinder its progress. For example, the governance structure is moderately strong, characterized by a clear and documented framework. However, significant barriers remain

Figure 7.2. Governance Indicators/Criteria visualization. Comparison between 2022 and 2024 at the Venice Lagoon Pilot Site.

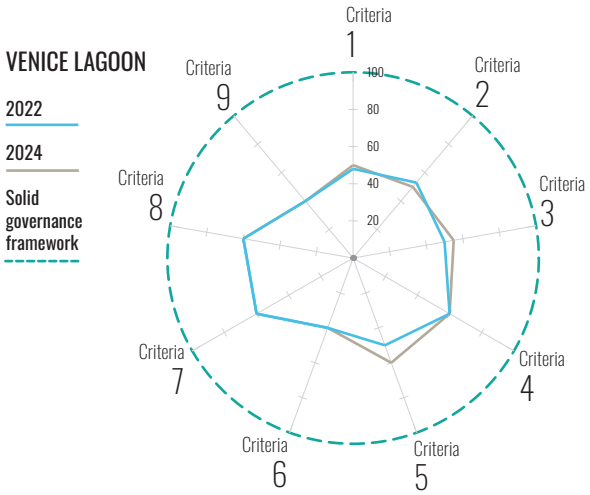
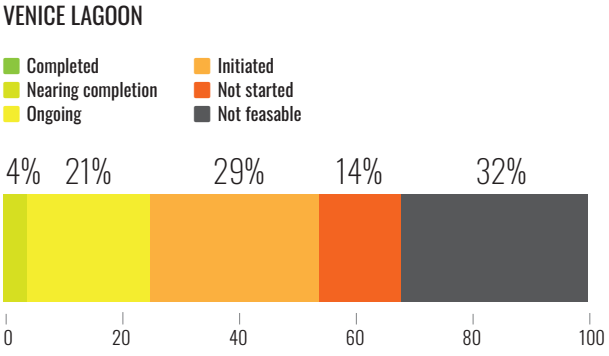


Figure 7.3. Progress on implementation of Roadmap actions in the Venice Lagoon Pilot Site.



due to delays in operationalizing this new authority, including the appointment of the managing bodies. These delays, coupled with a lack of full coordination among governance bodies, have led to overlaps and inefficiencies in decision-making, also influencing the implementation of restoration efforts. Additionally, while the relevant policy framework has been identified, new regulations concerning sediment management (such as the Ministerial Decree 86/2023) have introduced complexities that could further delay restoration activities.

The stakeholder engagement actions at the Venice Pilot Site are pivotal in fostering a collaborative and inclusive governance framework for the restoration of the Venice Lagoon. In terms of inclusive and effective decision-making, progress has been made in identifying and involving stakeholders through initiatives such as the CORE-PLAT, with annual meetings since 2022. Nevertheless, there are challenges in achieving full and equitable participation. Local communities and some stakeholder groups are underrepresented in decision-making processes, and there is resistance from certain categories due to economic interests or a lack of understanding of the importance of restoration. While the scientific community supports decision-makers, not all stakeholders and local communities trust or agree with the decisions taken, indicating a need for greater transparency and engagement.

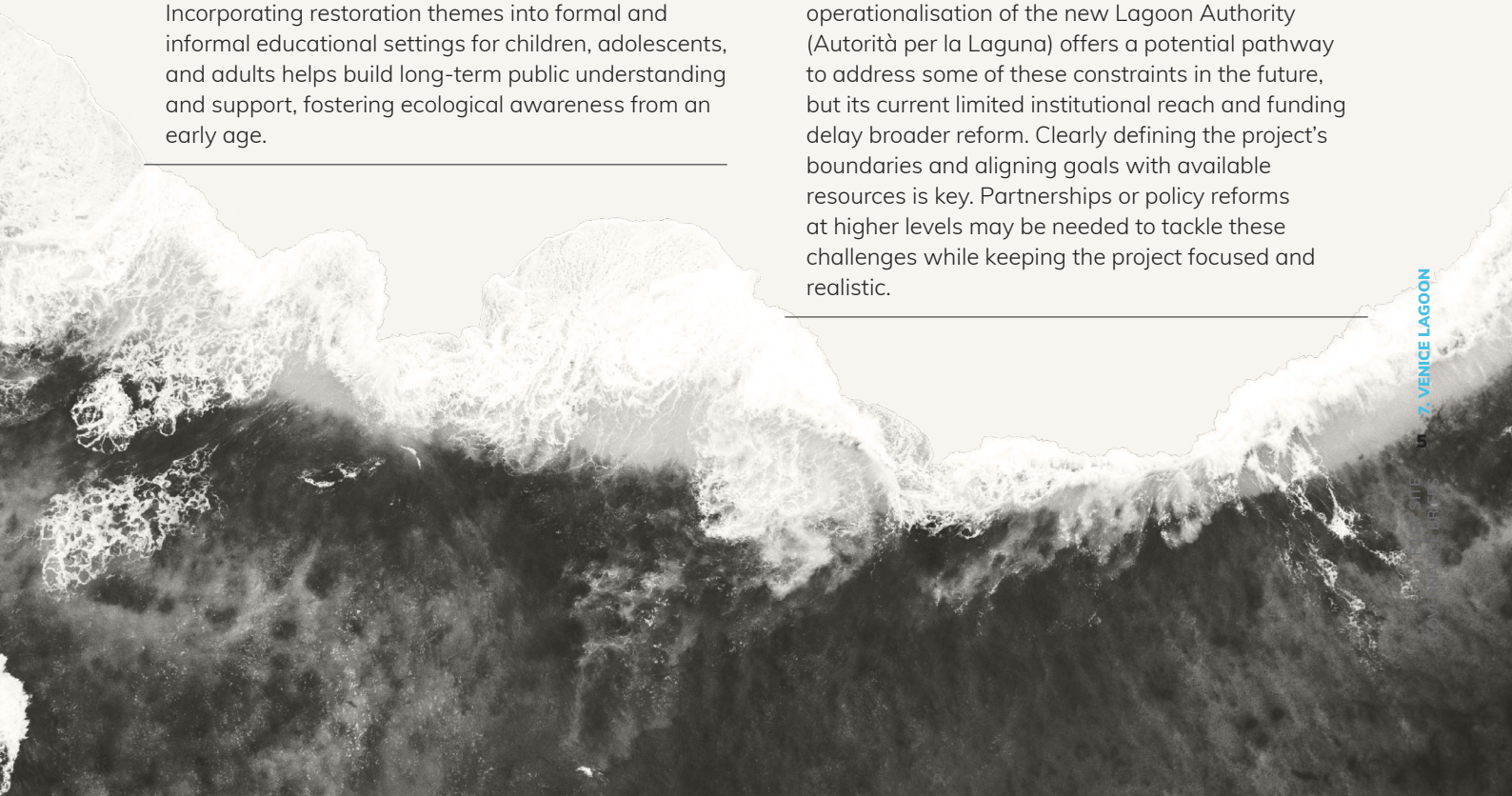
The recognition of tenure rights within the Venice Lagoon is also relatively limited. Most tenure rights are linked to specific trade categories, such as fishermen and hunters, and there is some awareness among local actors about their rights and the use of ESS. However, there is a lack of comprehensive regulatory frameworks that ensure fair and equitable tenure rights across all stakeholder groups. Additionally, the governance mechanisms show moderate respect for diversity in knowledge, cultures, and institutions, with some integration of traditional knowledge, but there remains room for greater inclusivity and representation of diverse cultural values. Overall, there seem to be gaps and need for improved coordination, increased inclusivity in decision-making, and more integrated regulatory frameworks to support tenure rights and equitable governance. Enhancing stakeholder engagement and transparency, particularly through the full operationalization of the Lagoon Authority and better integration of diverse perspectives, will be critical for advancing the restoration efforts in the Pilot Site.

Institutional support, funding, stakeholder engagement, and knowledge sharing are critical **enablers** for the success of the Pilot's coastal restoration efforts. National financial backing has improved water quality monitoring infrastructure, but without continuity, while collaboration among scientists and stakeholders has fostered consensus and shared vision and goals. Public access to data and outreach events has also contributed significantly to informed decision-making and adaptation to new challenges. However, challenges remain, such as conflicting economic interests, rigid data-sharing practices, discontinuity in funding over time, and limited project scope, which require policy reforms, transparent decision-making, and strategic partnerships to overcome.

Example of an artificial saltmarsh in the central lagoon of Venice.

Table 7.2. Enablers and Barriers identified in the Venice Lagoon through the Roadmap implementation.

ENABLERS	BARRIERS
• **Institutional Support and Funding:** National funding for water quality monitoring upgrades and support from scientific communities are crucial for the Pilot Site. This funding has improved monitoring infrastructure, showing a strong commitment to environmental management. Legal instruments such as Ministerial Decree 86/2023 also provide a governance basis for sediment-related planning. The involvement of scientists fosters collaboration and helps drive complex restoration projects, increasing their governance capacity.	• **Conflicting Economic Interests and Stakeholder Diversity:** Conflicting economic interests among stakeholders (e.g., transport services), pose challenges to decision-making. Some stakeholders see restoration efforts as a threat to their business, leading to resistance or reluctance to participate. The complex governance structure, with overlapping competencies, adds to this challenge. Additionally, a lack of shared long-term restoration vision among the diversity of actors involved (e.g., public institutions, NGOs, private users) leads to fragmented communication efforts and inconsistent planning. Finding common ground that balances economic interests with environmental goals is essential. This could involve raising awareness and creating transparent decision-making processes that integrate all interests.
• **Stakeholder Platforms and Engagement:** The CORE-PLAT and ongoing meetings with cultural institutions bring together a broad variety of stakeholders. These platforms encourage dialogue, consensus-building, and knowledge-sharing, aligning diverse interests toward a shared vision for the Venice Lagoon. Previous LIFE projects (e.g., LIFE BARENE, LIFE SERESTO, LIFE VIMINE) have demonstrated how direct engagement of fishers, hunters, and community groups in restoration improves legitimacy and ownership, providing additional models for strengthening stakeholder commitment.	• **Data Transparency and Institutional Rigidity:** Institutions in the Pilot are slow to share data, which hinders transparency, accountability, and trust. This lack of openness—compounded by overlapping mandates and administrative rigidity—makes it harder to build collaboration and support informed decision-making. Addressing this requires clear governance mandates, improved legal alignment, and capacity-building initiatives that promote open data-sharing practices across public institutions.
• **Knowledge Sharing and Capacity Building:** Sharing data and organizing outreach events are key for improving governance at the Pilot Site. Public access to information and lessons learnt from global research have helped the site adapt to challenges. These efforts ensure decisions are informed by the best available knowledge, supporting effective coastal restoration.	• **Scope Limitations and Project Constraints:** Some governance actions go beyond the scope of the REST-COAST project, such as addressing tenure rights or holding large public assemblies. These issues require broader policy changes or more resources than the project can provide. The gradual operationalisation of the new Lagoon Authority (Autorità per la Laguna) offers a potential pathway to address some of these constraints in the future, but its current limited institutional reach and funding delay broader reform. Clearly defining the project's boundaries and aligning goals with available resources is key. Partnerships or policy reforms at higher levels may be needed to tackle these challenges while keeping the project focused and realistic.
• **Education-based dissemination strategies:** Incorporating restoration themes into formal and informal educational settings for children, adolescents, and adults helps build long-term public understanding and support, fostering ecological awareness from an early age.	



7.2 Recommendations for strengthening progress on Roadmapped Actions

The Venice Pilot Site faces critical challenges in advancing certain governance actions, as highlighted by the number of initiatives classified as "Not Started" or "Not Feasible." These classifications suggest underlying deeper issues that may range from scope limitations and stakeholder resistance to broader systemic constraints. Reflecting on these challenges sheds light on potential tipping points that could either unlock progress or exacerbate current delays. An in-depth analysis of these actions stalled reveals critical insights into the structural and procedural barriers that might hinder greater governance transformation. Addressing these barriers requires a combination of strategic interventions, stakeholder engagement, policy alignment, and external support. Identifying and acting upon tipping points—such as stakeholder alignment on shared vision and goals, strategic use of existing governance platforms, and leveraging external expertise to pursue breakthroughs on restoration goals and upscaling objectives—could unlock progress. By focusing on these constraints, the Pilot Site could enhance its capacity to move beyond current barriers and achieve its governance transformation objectives under the REST-COAST project. At the same time, attention should be given to actions that can still be successfully implemented.

7.3 Analysis of Governance actions at Adaptation Measure level

7.3.1 Adaptation Measure Category 1: (Coastal) Wetland Restoration

This category addresses governance actions that directly support the **maintenance and restoration of saltmarshes** and the **establishment of seagrasses** in the Venice Lagoon. These nature-based interventions are crucial for enhancing flood protection, counteracting erosion and sediment loss, increasing biodiversity, and improving water quality. In the context of this Pilot, governance actions under this category focus on strengthening participatory mechanisms and building cross-sectoral stakeholder coalitions to support the implementation and long-term viability of wetland and submerged vegetation restoration. Given the highly modified and multi-use nature of the lagoon, the legitimacy and continuity of restoration efforts depend heavily on stakeholder collaboration and co-production of restoration strategies.

Individuals of Oystercatcher (*Haematopus ostralegus*) on the wooden poles surrounding an artificial salt marsh.

VENICE ACTION 14i, 14ii: Promote and increase stakeholder engagement by bringing additional stakeholders on board to meet common goals. Enhance co-production and build long-term cooperation. Promote the establishment of a local stakeholder network comprising scientists, NGOs, trade associations, and other actors involved in environmental restoration, ensuring their connection with wider European and international networks to stay informed about the latest knowledge and solutions.

These twin actions directly reinforce the governance foundations needed to implement and maintain wetland and seagrass restoration measures. Saltmarsh and seagrass systems require continuous stewardship, and such ecological continuity is only possible through long-term collaboration. These actions, therefore, seek to broaden the community of stakeholders who are directly engaged in shaping restoration goals, monitoring outcomes, and advocating for supportive policies. While the process is ongoing, CORE-PLAT meetings have initiated a participatory arena in which key stakeholders—including scientists and institutional actors—are already involved. The expansion of this network is vital to avoiding sectoral silos, filling the knowledge gaps and increasing alignment between different knowledge systems (scientific, institutional, community-based). Moreover, connecting local actors to broader European and international networks will improve the uptake of restoration innovations and the transference (and exchange) of best practices.

These actions also address the persistent fragmentation of stakeholder perspectives and the need to develop a shared long-term restoration vision—of particular importance in the Venice Lagoon, where restoration interconnects with urban development, port activity, and cultural heritage preservation. An inclusive stakeholder network will provide the social infrastructure to support the restoration of marsh and submerged vegetation systems beyond the current pilot phase. It becomes clear upon reviewing the enablers and barriers that prior seagrass and saltmarsh projects, CORE-PLAT participatory platforms, and public sector support mechanisms can and do function as key foundations for broader stakeholder engagement and co-production. On the other hand, mistrust, competing spatial/economic interests, lack of sustained funding, and governance fragmentation obstruct the establishment of stable, participatory restoration coalitions, which are critical to sustaining marsh and seagrass interventions over time.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• CORE-PLAT has initiated participatory engagement, including relevant stakeholders in NbS-based restoration practices, fostering discussions on marsh and seagrass restoration interventions. • Past LIFE projects (e.g. LIFE-BARENE, LIFE-SERESTO, LIFE-VIMINE) have demonstrated that engaging stakeholders such as fishers and hunters directly in seagrass and halophyte transplantation improves local buy-in and ecological outcomes, also spreading and exploiting the specific local knowledge of these stakeholders. • Availability of technical knowledge and nursery-grown plant material for transplanting halophytes and seagrasses, supported by public funding mechanisms (this supports stakeholder-driven co-production with tangible actions and materials). • Public and institutional awareness around the ecosystem service value of salt marshes (e.g., erosion control, flood protection) provides a narrative for engaging wider civil society and professional groups, which is relevant to motivating broader stakeholder coalitions as envisioned in Action 14ii.	• Conflicting interests from lagoon users (e.g., transport and port sectors) who perceive marsh expansion or seagrass planting as a spatial or operational constraint. • Limited social trust and underrepresentation of local communities in restoration dialogues, which hinders the legitimacy and long-term viability of participatory networks required for continued ecological stewardship. • Fragmented governance structures limit effective establishment of a multi-actor stakeholder platform, and the institutionalisation of co-production processes needed for seagrass/saltmarsh continuity (e.g., slow operationalisation of Lagoon Authority). This barrier could be overcome with active engagement of the Lagoon Authority. • Inconsistent restoration outcomes and lack of clarity in ecological goals (e.g., variable success of seagrass transplantation, lack of agreed restoration reference conditions for saltmarshes), which weakens the credibility and appeal of participating in long-term restoration partnerships.

7.3.2 Adaptation Measure Category 3: Restoring Hydraulic Connectivity

This category includes governance actions that support the planning, coordination, and participatory implementation of measures aimed at **restoring hydrological links between aquatic and terrestrial systems**. In the Venice Lagoon, actions like riparian buffer creation, freshwater input (e.g., LIFE-REFRESH), and enhanced nutrient management play a critical role in water quality improvement, ecological integrity, and the reconnection of ecosystem processes across aquatic boundaries. Restoration of hydraulic connectivity in Venice must contend with complex institutional layers and a high degree of anthropogenic modification in the lagoon's water system. Governance measures in this category emphasize institutional collaboration, participatory monitoring, and transparent data sharing to support measures like buffer zones, nutrient reduction, and water flow improvements that contribute to large-scale restoration and ecosystem resilience.

VENICE ACTION 4: Increase information sharing and integration of knowledge into the restoration work.

This action directly supports restoration interventions by enhancing the knowledge flows between research institutes, lagoon management bodies, and project implementers. It is essential in contexts where multiple agencies are involved in nutrient management, hydrological planning, and restoration delivery, yet where institutional silos impede coordinated action. In Venice, where scientific actors and restoration agencies often operate in parallel, this action promotes integrated planning and communication on water-related restoration priorities. It includes aligning efforts around riparian buffer zones, nutrient mitigation interventions, and sediment processes that affect lagoon health. The action aims to strengthen the horizontal integration of technical and institutional knowledge between research institutes, lagoon management bodies, and project implementers to support connectivity measures such as riparian buffers and nutrient management interventions.

The action also responds to the challenge posed by stakeholders (e.g., transport services or industrial actors) who resist participating in restoration dialogues due to perceived threats to their interests. Through the ongoing CORE-PLAT meetings, REST-COAST has fostered dialogue among more supportive actors and worked toward integrating these exchanges into strategic decision-making, but the scope of knowledge integration remains limited by selective participation.

By bridging research outputs and governance decision-making, this action can support the scientific and social legitimacy of hydraulic restoration measures that aim to reduce pollution, improve water quality, and restore ecological processes across land-water interfaces.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• Ongoing collaboration between scientific institutes, managing authorities, and implementers, particularly in restoration planning and delivery of riparian buffers, restored saltmarsh ecosystems and sediment-related interventions. • CORE-PLAT participatory platform has initiated knowledge exchange that bridges scientific, technical, and policy expertise relevant to restoration measures. • Positive ecological outcomes observed in past nutrient reduction efforts (e.g., LIFE-SERESTO) support the legitimacy of sharing and using scientific knowledge to guide implementation decisions for connectivity and water quality measures.	• Low willingness to participate from certain economic stakeholders (e.g., transport services) due to perceived trade-offs between restoration goals and operational interests. • Stakeholders often work in silos, limiting their exposure to scientific outputs or integrated planning tools. This can be especially problematic for interventions that require coordinated watershed-lagoon governance. • Underrepresentation of community-based actors and lack of iterative knowledge feedback loops, which hinders the use of co-produced knowledge in connectivity planning and monitoring.

VENICE ACTION 12ii: Stimulate effective cooperation between public bodies for an integrated water quality monitoring network of the Venice Lagoon by promoting the systematic involvement of all the public bodies at the local level.

This action focuses on vertical and horizontal integration between institutions to build a coherent monitoring framework underpinning interventions like riparian buffers and nutrient mitigation measures. It plays a key role in restoring the lagoon by addressing the lack of coordination between the multiple public bodies responsible for monitoring and managing the lagoon and basin water systems. A fragmented governance framework and complex legal system—composed of ordinary, special, and commissarial regimes—has traditionally impeded integrated planning and joint data usage. This action seeks to build a foundation for cross-institutional cooperation by developing a shared water quality monitoring framework, particularly relevant for riparian buffer planning and nutrient control interventions. While the technical work is nearly complete, challenges remain in ensuring that public bodies systematically and regularly engage with each other and share monitoring data transparently.

The REST-COAST project has fostered cooperation in water quality monitoring by performing monitoring at the lagoon, drainage basin, and marine level using national and EU funds, and then by enabling free access to the resulting data. Although this work has mostly taken place on platforms outside of CORE-PLAT, it offers a governance entry point for synchronizing environmental information and enabling adaptive restoration based on accurate water quality trends. This action is especially relevant in supporting measures such as riparian buffers and wetland-lagoon connectivity by offering the baseline monitoring data needed to target interventions and assess ecological impacts over time.

GOVERNANCE INDICATOR: **DEVOLUTION**

ENABLERS	BARRIERS
• Recent national funding has enabled the renewal and upgrade of lagoon, drainage basin, and marine monitoring stations, providing a technical foundation for cooperative monitoring (e.g., ITINERIS and DANUBIUS-RI). • Existing agreements stipulate free access to environmental data, supporting transparent coordination and adaptive restoration based on monitoring outcomes. • Multilevel institutional involvement in infrastructure renewal (across lagoon and basin systems) sets a precedent for broader cooperation in water quality data sharing.	• Institutional fragmentation and overlapping legal frameworks (ordinary, special, and commissarial regimes) impede joint governance and data-sharing efforts. • Persistent institutional rigidity among agencies managing water quality data limits the functional integration of monitoring systems needed for riparian and nutrient interventions. • Lack of a shared set of objectives and ecological thresholds prevents institutions from aligning their monitoring mandates with practical restoration targets. Although specific regulations such as Ministerial Decree 86/2023 establish criteria for sediment management within the Venice Lagoon, the lack of coordinated interpretation and operational alignment among institutions limits the effective integration of monitoring with the practical planning and implementation of restoration interventions.

7.3.3 Adaptation Measure Category 4: Artificial Habitat Creation

This category includes governance actions that enable or support the **creation and protection of artificial habitats** such as mudflats, engineered islands, or sediment-based ecological infrastructure. In the Venice Lagoon, the primary intervention under this category is the restoration and ecological enhancement of artificial saltmarshes and mudflats—areas originally constructed for flood protection and morphological stability, which are of great importance for biodiversity gains, resilience enhancement, habitat conservation and restoration efforts. Governance actions under this category focus on enabling collaborative planning, transparent monitoring, and communication processes to integrate artificial habitat creation into broader lagoon management frameworks. These actions aim to enhance the ecological function of existing artificial structures and support the integration of novel habitats into a fragmented and heavily modified lagoon system. Governance is essential to mediate stakeholder interests, inform the public, and coordinate institutional actions related to habitat design, implementation, and adaptive monitoring.

VENICE ACTION 15i, 15ii, 15iii: Improve communication and dissemination, increase public availability of restoration activity reporting, and promote knowledge-sharing through public outreach, stakeholder consultation, and integration of traditional and scientific knowledge into decision-making.

These set of actions aim to reinforce governance for artificial habitat creation by enhancing transparency and dialogue between institutions, stakeholders, and the public. They are essential for building legitimacy, improving technical awareness, and scaling restoration practices for engineered-natural ecosystems. This action directly supports governance for artificial habitat creation by establishing a communication infrastructure that connects restoration interventions (such as artificial saltmarshes) with both institutional processes and broader public understanding. It addresses one of the core gaps in the Venice Lagoon pilot: the absence of publicly accessible, systematised reporting on restoration progress and lessons learned, especially regarding complex engineered-natural systems like artificial mudflats. The action promotes the organisation of stakeholder workshops (e.g., via CORE-PLAT), the public dissemination of knowledge products, and the incorporation of diverse knowledge sources—scientific, local, and traditional—into planning processes.

At the Venice Site, the CORE-PLAT has already enabled some degree of shared visioning and debate over the ecological and socio-economic value of restoration actions. This action aims to scale and institutionalise such efforts by linking technical reporting (e.g., data from monitoring artificial saltmarshes) to participatory channels that can inform wider lagoon governance. It also supports the public-facing narrative of artificial habitat creation, offering opportunities to reduce misunderstandings and build legitimacy for future interventions through enhanced knowledge exchange and visibility.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• CORE-PLAT provides a functioning participatory forum for engagement and vision-building, which has already supported dialogue on the ecological and socio-economic value of artificial restoration works. • Precedent of successful public outreach from LIFE projects that have engaged local actors (e.g., fishers, hunters) in the construction and monitoring of artificial habitats, enhancing public awareness and technical legitimacy. • Multi-stakeholder mapping and public surveys are already implemented under REST-COAST, and the public feedback on artificial marsh priorities can help inform technical evaluations, supporting participatory planning. • Political support is strengthened when visible restoration outcomes are communicated to the public, and the prestige gained through successful and visible ecological projects is a reinforcing enabler for transparency and funding. • Education-based dissemination strategies—Incorporating restoration themes into formal and informal education (for children, adolescents, and adults) has emerged as a low-cost, high-impact strategy for long-term public engagement.	• Lack of systematic, publicly available reporting on restoration progress and performance (restoration data, especially on artificial structures, is inconsistently shared, limiting public understanding and trust). • Negative public perception of institutional restoration efforts and a general lack of trust in institutions and poor scientific communication have contributed to public scepticism and disengagement from artificial habitat restoration initiatives. Negative public perception of institutional restoration efforts and a general lack of trust in institutions and poor scientific communication have contributed to public scepticism and disengagement from artificial habitat restoration initiatives. • The complexity and cost of monitoring artificial marsh performance is a significant barrier. Adaptive management is hindered by delayed ecological responses and the absence of long-term funded monitoring, making it difficult to generate the evidence base needed for public communication. • Lack of shared long-term restoration vision among the diversity of actors involved in the restoration (e.g., public institutions, NGOs, private users) often leads to disjointed communication efforts and fragmented planning across the artificial habitat interventions. • Organising large-scale public outreach events and consultations exceeds current project resources.

7.3.4 Adaptation Measure Category 6: Flood Protection

This category addresses governance actions that support physical and institutional measures to **manage flood risk** in the Venice Lagoon, particularly in the context of the Mo.S.E. (Modulo Sperimentale Elettromeccanico) flood barriers. Governance in this domain must facilitate coordination between multiple overlapping legal and institutional authorities, ensure accountability in long-term infrastructure management, and improve the transparency and responsiveness of flood protection systems. Due to Venice's unique urban-lagoon context, effective flood protection governance also requires balancing the technical operation of flood defence structures with socio-ecological and cultural landscape needs.

VENICE ACTION 1: Increase transparency and data availability.

This action supports flood protection governance by aiming to improve transparency around the operational decisions, data flows, and institutional responsibilities connected to the Mo.S.E. flood barriers and broader hydrological management. The action responds to critiques regarding opacity in decision-making and institutional fragmentation across the lagoon. With the Mo.S.E. system functioning since 2020 as the main physical infrastructure for flood protection in Venice, this governance action is essential to ensure public trust, coordinated responses, and data-driven adjustments to barrier activation protocols. Greater data transparency also allows for improved oversight on flood risk scenarios and climate adaptation outcomes, helping align technical management with ecological needs and civic accountability.

The action aligns with the governance objective of strengthening legal alignment and institutional coordination. The pending full operational capacity of the newly appointed Lagoon Authority is expected to facilitate this action further by centralizing responsibilities and enabling structured information sharing among institutions. Historically, data management has been fragmented across different institutional actors managing parts of the lagoon (e.g., municipalities, regional agencies, environmental stakeholders), many of whom have been reluctant to share flood-related data openly. This action proposes overcoming this siloed structure by establishing open-access systems or agreed-upon coordination protocols that can inform shared flood governance agendas. Ultimately, improving transparency enhances the legitimacy and functionality of Mo.S.E. within a broader restoration and adaptation framework.

GOVERNANCE INDICATOR: **GOVERNANCE STRUCTURE AND LEGAL ALIGNMENT**

ENABLERS	BARRIERS
• Establishment of the Lagoon Authority: The recent appointment of the Lagoon Authority, their potential increasing budget and the gradual development of its full operational capacity present a unique opportunity to centralise data flows and institutional responsibilities for flood governance. • Growing institutional awareness of the need for open governance and data sharing (there is broad acknowledgment across stakeholders that greater transparency and inter-institutional communication are necessary for effective flood risk governance). • Increased public and political visibility of Mo.S.E. encourages institutional accountability given the visibility and controversy surrounding Mo.S.E. have generated external pressure to improve transparency and foster broader legitimacy for flood governance reforms.	• Persistent institutional rigidity and resistance to data sharing for Mo.S.E. and flood-related systems (public institutions remain reluctant to share information openly, reinforcing silos between public institutions). • Fragmented legal and governance structures, and the presence of overlapping regimes (ordinary, special, and commissarial) contribute to unclear mandates, conflicting responsibilities. • Limited stakeholder representation in flood governance, particularly from communities and NGOs, undermines the legitimacy and social acceptability of institutional decisions related to Mo.S.E. operation.

7.3.5 Remaining Governance Actions: Project Implementation and Governance Systemic Transformation

In Venice Lagoon these actions address structural governance limitations by improving transparency, coordination, legal clarity, institutional capacity, and participatory frameworks. Although not directly linked to individual adaptation measures (such as marsh restoration or seagrass transplantation), they strengthen the enabling conditions for all Nature-based Solutions deployed in the lagoon and improve the resilience of the overall governance framework of the project.

VENICE ACTION 1: Increase transparency and data availability.

This action supports the restoration governance system by improving access to environmental and operational data across institutions. The pending full activation of the new Lagoon Authority offers an opportunity to increase the open up data flows—particularly with info about flood protection, hydrodynamic conditions, and restoration monitoring—thereby improving accountability and strategic alignment across public bodies.

VENICE ACTION 2: Increase stakeholder involvement and funding by applying more inclusive and effective decision-making processes.

This action aims to improve the legitimacy and funding of restoration efforts by strengthening multi-actor engagement through platforms like the CORE-PLAT. Given the complexity of the lagoon's governance and the conflicting interests among users (e.g., transport, fisheries, conservation), inclusive decision-making is key to fostering cooperation and unlocking financial diversification for long-term action.

VENICE ACTION 3: Apply more inclusive and effective decision-making processes to support stakeholder involvement and funding. (*Currently marked as Not Feasible*)

This action overlaps conceptually with Action 2 but was marked as not feasible within REST-COAST, due to the fact that the Lagoon of Venice is of national interest. As such, only the Provveditorato Interregionale per le Opere Pubbliche per il Veneto, Trentino Alto Adige e Friuli Venezia Giulia (as a local body of the Ministry of Infrastructure and Transport), first, and the Lagoon Authority, now, has the power for deciding and implementing interventions in the lagoon. It highlights the importance of stakeholder equity in decision-making and remains a valid governance objective beyond the project's scope.

VENICE ACTION 5: Improve coordination and coherence by addressing the limited coordination between different public institutions and the bureaucratic rigidity that has hindered the internalization of suggestions for improving restoration activities.

This action seeks to address institutional fragmentation that hampers the implementation of restoration activities. Through the CORE-PLAT and technical collaboration under REST-COAST, this action works toward building a unified vision to facilitate large-scale coastal and ecological planning.

VENICE ACTION 6: Increase public involvement and stakeholder management.

By promoting broader societal engagement and awareness, this action aims to increase public support for restoration and ensure a diversity of interests are reflected in strategic planning. It contributes to building consensus on the lagoon's future and to integrating social legitimacy into ecological decision-making.

VENICE ACTION 7: Improve overall KPI metrics and tracking. *(Currently marked as Not Feasible)*

Although not implemented under the project, this action would support more effective restoration governance by introducing measurable indicators to track ecological outcomes, stakeholder engagement, and institutional performance. Establishing robust KPIs would enhance transparency and enable adaptive management across multiple restoration initiatives, strengthening accountability and evidence-based decision-making in the Venice Lagoon.

VENICE ACTION 9i, 9ii: Improve the clarity and recognition of tenure rights. *(Currently marked as Not Feasible)*

While outside the scope of the project, clarifying tenure and concession rights (potentially in areas such as the *Valli di Pesca*) might provide a more secure and equitable basis for restoration planning and implementation. Legal clarity on land and water rights would reduce conflicts, foster stakeholder trust, and enable long-term investments in ecosystem restoration and sustainable use.

VENICE ACTION 10i, 10ii, 10iii: Enhance strategic adaptability of governance systems.

These actions promote adaptive, multi-level governance structures that are capable of responding to complex challenges. They call for improved dialogue across knowledge domains and institutions, including the research public bodies, vertical coordination between governance levels, and shared vision-building among public authorities and the scientific world, essential for scaling NbS in a fragmented system like the Venice Lagoon. While these actions call for more permeable vertical boundaries and an effective multi-level governance system, such reforms currently fall outside the strategic interest and institutional purview of the lagoon governance framework. Their implementation would require mandates and reforms at national or ministerial level, beyond REST-COAST's current influence.

VENICE ACTION 12i: Promote the systematic involvement of all public bodies and improve decision-making pace. (*Currently marked as Not Feasible*)

Though marked as not feasible for the Pilot team, this action reflects an enduring governance challenge: ensuring coordinated participation of all relevant institutions across the lagoon. While REST-COAST focused on multi-stakeholder forums, involving the mail Regional and National Institutions, future efforts may need to institutionalise inter-agency local-scale dialogue more directly. While some thematic roundtables have been organised for specific sectors, establishing a more structured, all-institution forum goes beyond the scope of REST-COAST. The Pilot has focused instead on consolidating representation through a single participatory platform (CORE-PLAT).

VENICE ACTION 13: Analyse overlapping objectives between existing policies and the project. (*Currently marked as Not Feasible*)

Not carried out under REST-COAST, this action seeks to reduce policy contradictions by harmonising restoration aims with broader environmental, cultural, and planning frameworks—an issue of strategic relevance for future governance reform.

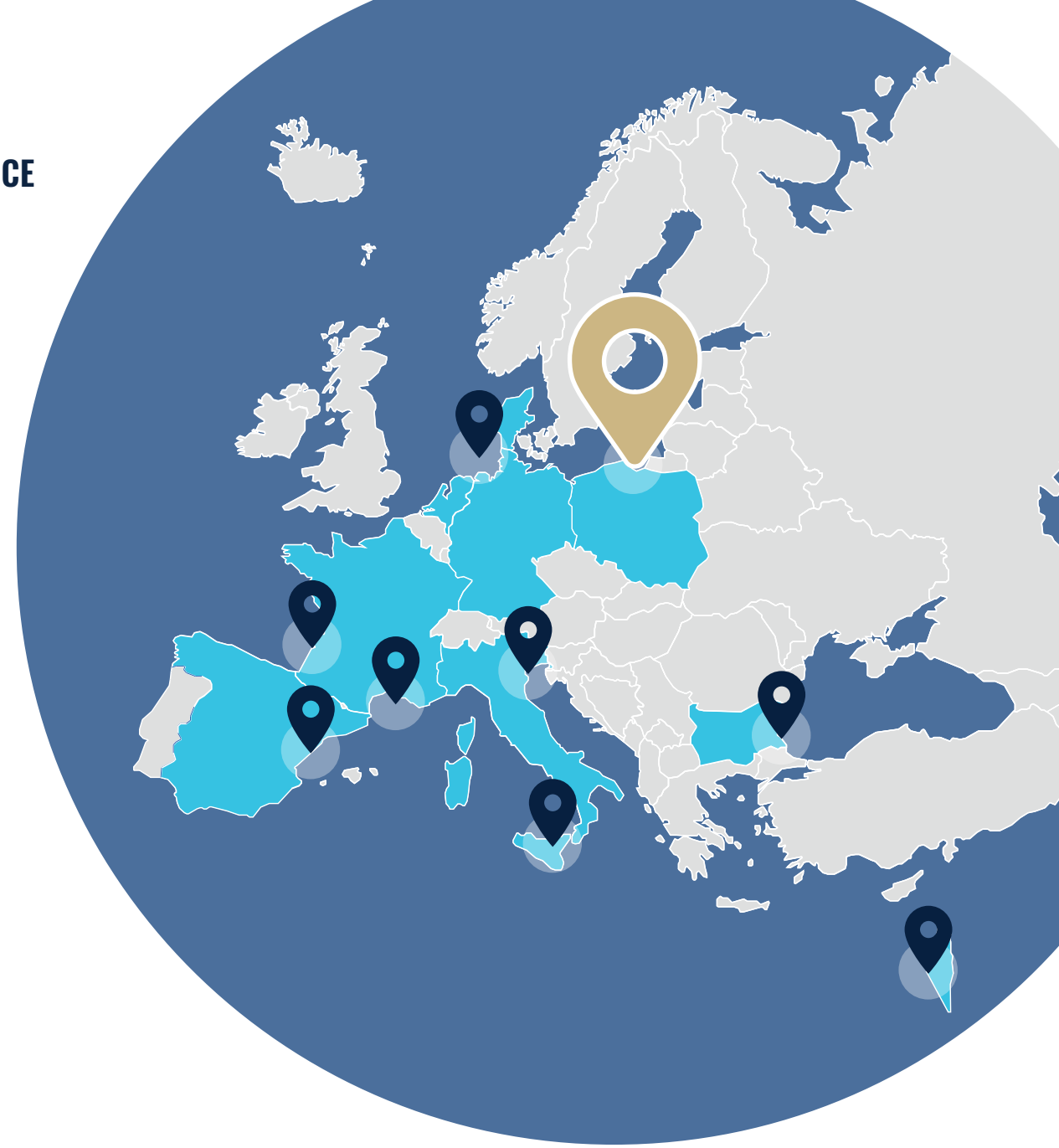
VENICE ACTION 14iii, 14iv, 14v: Guide strategic vision, resolve conflict, and improve knowledge exchange. (*Currently marked as Not Feasible*)

This set of actions supports governance maturity by promoting dialogue, conflict mediation, and knowledge brokerage among scientists, stakeholders, and authorities. While only partially implemented, these mechanisms are key to co-producing governance solutions in a politically sensitive and socio-ecologically diverse context like the lagoon. However, despite the progress made in vision-building through CORE-PLAT, the process of establishing a unified long-term vision remains slow. Many stakeholders hold conflicting economic interests, and it is still challenging to foster recognition that ecological restoration serves a transversal public interest beyond individual sectoral priorities. Organising large-scale public assemblies has been constrained by resource limitations and was not an objective within REST-COAST. However, smaller participatory activities and surveys have provided insight into public priorities, and efforts continue to shape a shared vision through the iterative CORE-PLAT process.

VENICE ACTION 16i, 16ii: Encourage development of restoration KPIs and progress metrics. (*Currently marked as Not Feasible*)

This action proposes governance indicators and adaptive benchmarks to evaluate restoration effectiveness and system transformation. Although not implemented, it underscores the need for strategic monitoring tools to guide restoration governance beyond individual projects.

PILOT SITE GOVERNANCE BRIEFS



REST-COAST

8. VISTULA LAGOON

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With collaboration from pilot site teams

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Funded by the European Union

8. VISTULA LAGOON

The stakeholder map for the Vistula Lagoon Pilot Site presents a structured governance framework that brings together actors across national, subnational, and local levels (Figure 8.1. At the national level, key institutions such as the Maritime Office in Gdynia oversee maritime infrastructure and navigation, while the Polish Society for the Protection of Birds contributes to biodiversity conservation. The Institute of Hydro-Engineering of the Polish Academy of Sciences (IBW PAN) provides essential scientific expertise in hydrology and coastal engineering. The Pomorskie and Warmińsko-Mazurskie Provinces serve as the primary subnational authorities. Their responsibilities include environmental oversight, policy implementation, and coordination with both national institutions and local communities. The local level is composed of a network of municipalities and communities which are directly involved in managing the lagoon's resources. These local actors play a crucial role in promoting sustainable development, tourism, and environmental stewardship within the area.

8.1 Pilot-wide governance framework: State of play and analysis of roadmapped actions

A review of the governance indicator performance between 2022 and 2024 shows limited improvement (Table 8.1. and Figure 8.2.). Out of nine governance criteria, only one—"*Inclusive and Effective Decision-Making*"—recorded a positive change (+3%), while three others declined (e.g., "*Governance Structure and Legal Alignment*" -10%; "*Strategic Vision, Learning and Direction*" -7%; "*Coordination and Coherence*" -7%), and four remained unchanged. The overall average score decreased slightly from 75% to 73%. This static performance suggests that while key institutions such as the Maritime Office are actively engaged and certain planning and legal responsibilities are clear and centralized, broader stakeholder alignment, policy harmonization across provincial and national scales, and mechanisms for participatory governance remain underdeveloped. This is particularly evident in indicators related to "*Devolution*," "*Strategic Vision*," and "*Coordination*," which declined despite targeted actions in these domains.

Figure 8.1. Stakeholder map for the Vistula Lagoon Pilot Site.

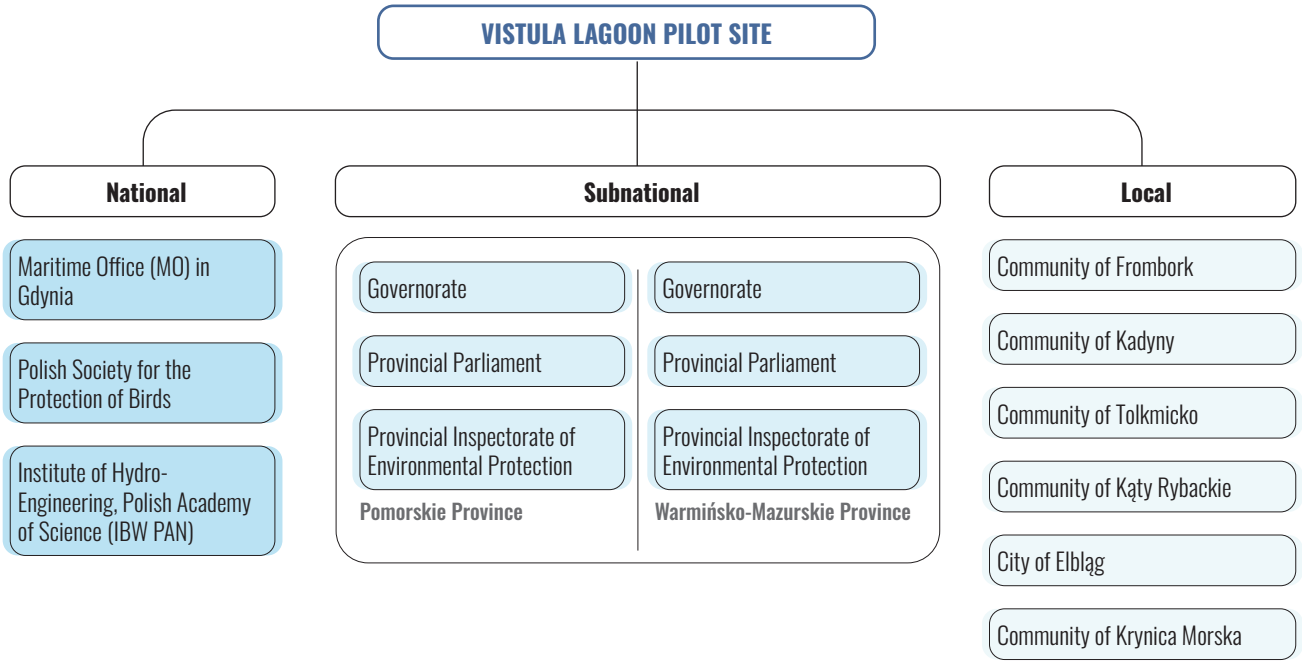


Table 8.1. Results from governance self-assessment at Vistula Lagoon Pilot Site by criteria in 2022 and 2024.

GOVERNANCE CRITERIA	Performance Rates		Variation from 2022 to 2024
	2024	2022	
1. Governance Structure and Legal Alignment	58%	68%	-10%
2. Inclusive and Effective Decision-Making	68%	65%	3%
3. Recognition Of Tenure Rights	80%	80%	0%
4. Diversity Of Knowledge, Cultures and Institutions	80%	80%	0%
5. Devolution	80%	85%	-5%
6. Strategic Vision, Learning and Direction	67%	73%	-7%
7. Coordination and Coherence	80%	87%	-7%
8. Accountability	80%	80%	0%
9. Grievance and Conflict Resolution	60%	60%	0%
Average Performance	**73%**	**75%**	**-3%**

The progress of roadmap implementation in the Vistula Lagoon Pilot Site (Figure 8.3.) reflects both the strengths and limitations of its existing governance architecture. Out of **14 road-mapped strategic governance actions** assessed for the site (19 actions total, if one counts several which are broken into sub parts, such as 9i/9ii, 11i/11ii/11iii/1iv, and 12i/12ii), approximately 64% are either at the "initiated" or "ongoing" stage, with one action nearing completion (Action 13) and none classified as "Not Feasible". Based on the classification provided, over half of the actions (58%) are currently *initiated*, indicating that planning, coordination, or preparatory steps have begun, but the actions have not yet moved into substantial implementation. An additional 26% are classified as *ongoing*, meaning concrete activities are underway. Only one action (Action 13 on *Governance Structure and Legal Alignment*) is reported as *nearing completion*, reflecting significant advancement in that specific area, which is perhaps unsurprising given the Maritime Office's strong coordinating role and legal authority in this domain. This moderate progress points to the strength of certain institutional arrangements, notably the pivotal role of the Maritime Office, which consistently emerges as the primary operational enabler throughout the site's governance transformation roadmap. However, despite these procedural advancements, systemic and structural constraints—including deep-rooted mistrust in institutions and limited cross-provincial coordination—continue to impede holistic transformation. The implementation status of the 19 roadmapped governance actions in the Pilot Site reflects a broad yet preliminary level of engagement with the roadmap's recommendations.

On the other hand, two actions remain *not started*—these likely reflect either limited feasibility at this stage or dependencies on institutional changes or external cooperation. Importantly, no actions have been classified as *not feasible*, suggesting that while progress may be slow or partial in some areas, there is a shared perception among stakeholders and Pilot actors that each action retains the potential for future implementation. The proportion of actions that have progressed *beyond* 50% *completion* is relatively modest (32%), highlighting a governance transformation process that is still in its early to mid-stages and facing structural constraints that limit acceleration.

Figure 8.2. Governance Indicators/Criteria visualization. Comparison between 2022 and 2024 at Vistula Lagoon Pilot Site.

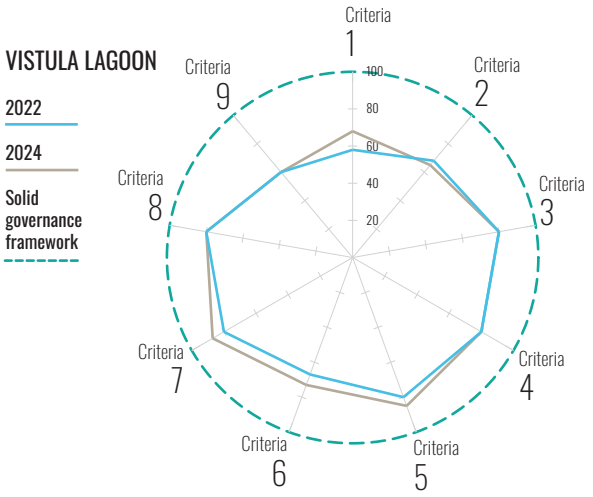
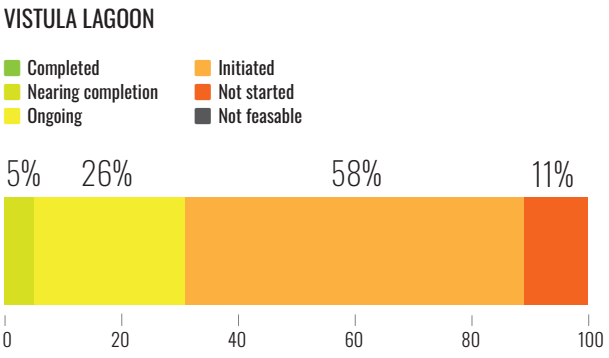


Figure 8.3. Progress on implementation of Roadmap actions in Vistula Lagoon Pilot Site.



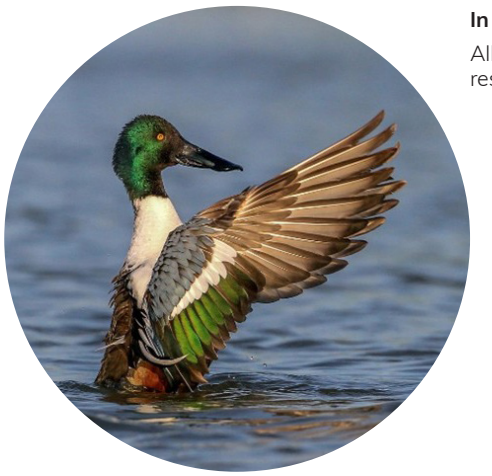
Actions across most governance dimensions—such as those relating to *Stakeholder Engagement* (Actions 11i, 11ii, 11iii,11iv), *Strategic Vision* (Action 9i), and *Devolution* (Action 12i)—are currently at the *initiated* or *ongoing* stages. These reflect a growing but cautious engagement with participatory governance and multi-actor collaboration, particularly led by the Maritime Office. Still, persistent barriers—such as low trust in institutions, poor cooperation between provinces, and socio-economic marginalisation in the southern lagoon—are delaying full implementation. From a **stakeholder perspective**, stakeholder dynamics present both a structural barrier and a conditional opportunity in the Pilot Site. It should be emphasized the dominant role of the Maritime Office but also underscores the lack of coordination between key actors at the provincial level. While formal stakeholder consultation events exist, their reach and uptake are uneven due to low trust, divergent regional interests, and lack of perceived benefits among the local population—particularly in the southern sub-region. The Site still lacks mechanisms for consistent cross-provincial collaboration, and the fragmented governance framework weakens long-term engagement potential. Limited public awareness on biodiversity restoration and NbS further hampers progress. The stakeholder strategy remains highly dependent on the Maritime Office's convening power and the slow evolution of economic and ecological incentives. Targeted investment in human capital, deeper provincial cooperation, and building platforms for more inclusive and sustained stakeholder dialogues—especially with municipalities and research institutions—will be necessary to strengthen participatory governance and unlock long-term transformation.

In summary, while there is foundational momentum, particularly driven by institutional leadership and some technical enablers, only a small portion of the actions have progressed significantly. The implementation profile suggests the need for enhanced coordination mechanisms, stakeholder buy-in, and long-term capacity building to move from preliminary engagement to systemic governance transformation in the Pilot Site.

The **enablers** (Table 8.2.) supporting action implementation in Vistula Lagoon are consistent and institutional in nature. Chief among them is the central role of the Maritime Office, which not only holds key decision-making power (especially regarding tenure rights and stakeholder consultations) but also commands technical credibility and independence from political volatility. Additional enablers include the existing framework for tenure rights, gradual economic recovery plans (especially tied to Elbląg Harbour), and dissemination efforts such as the artificial bird island project to promote biodiversity awareness. However, actions across domains like devolution, stakeholder participation, and transparency face systemic barriers: impoverishment of the southern banks, persistent mistrust in governance institutions, slow uptake of restoration values among residents, and the absence of robust coordination mechanisms between Pomorskie and Warmińsko-Mazurskie provinces. These institutional and socio-economic barriers are reinforced by unclear ownership at Elbląg Harbour and a lack of clear economic incentives for broader engagement in restoration initiatives.

The **barriers** (Table 8.2.) to effective governance transformation in the Vistula Lagoon are predominantly structural and socio-economic, with long-standing regional disparities at their core. The most prominent constraint is the persistent impoverishment of the southern sub-region, which significantly weakens local stakeholder capacity and motivation to engage in restoration or governance activities. This economic divide not only hampers the implementation of NbS and biodiversity initiatives but also fosters a sense of passivity and disengagement among southern communities. Compounding this is a lack of coordination and mutual interest between Pomorskie and Warmińsko-Mazurskie provinces, which has resulted in administrative fragmentation and limited joint planning across the lagoon.

These governance barriers are further exacerbated by a present mistrust in institutions, a legacy of the region's political and social history, which undermines the uptake of legal instruments and slows the implementation of otherwise well-designed mechanisms for participation and accountability. In parallel, geopolitical developments, particularly the war in surrounding countries, have severed previous channels of transboundary cooperation, stalling opportunities for joint ecological management and research. Lastly, limited public awareness and appreciation of biodiversity restoration—especially in economically stressed areas—constrains the impact of stakeholder outreach, despite the central Maritime Office's ongoing consultation efforts. This complex interplay of economic, institutional, and geopolitical barriers underscores the need for long-term, state-supported interventions that integrate social equity with ecological restoration goals.



In Vistula Bay.

Table 8.2. Enablers and Barriers identified in Vistula Lagoon through the Roadmap implementation.

ENABLERS	BARRIERS
• **Strong Institutional Leadership and Defined Governance Framework**: The Maritime Office serves as the central coordinating body, with clearly defined competences, legal authority, and administrative reach. It provides structure, continuity, and technical expertise across governance actions. The governance structure is well defined, particularly on the northern side of the lagoon, supported by coherent legal instruments and a hierarchical framework aligned with EU, national, and regional mandates.	• **Persistent Socioeconomic Disparities**: The southern sub-region of the lagoon suffers from entrenched poverty and economic stagnation, which limits both engagement and the capacity of local stakeholders to initiate or support governance actions. This economic imbalance with the more prosperous northern region (Pomorskie Province) leads to passivity, reduced uptake, and a dependency on central government support for any meaningful progress.
• **Legislative and Policy Tools**: The site benefits from a comprehensive set of legal instruments, particularly through EU environmental regulation (e.g., Natura 2000) that provide a regulatory baseline for biodiversity protection and stakeholder rights. Competences and jurisdictions are clearly mapped, enabling theoretical application of accountability and transparency mechanisms.	• **Inter-Provincial Fragmentation and Low Cooperation**: There is a lack of coordination between Pomorskie and Warmińsko-Mazurskie provinces, which weakens harmonization efforts, obstructs joint planning, and perpetuates administrative inefficiency. Vistula Lagoon governance is not prioritized equally across provinces, further complicating trans-regional collaboration.
• **Technical and Planning Capacity**: Coastal authorities (primarily the Maritime Office) have the skills, tools, and planning capacity needed for NbS implementation, conflict mediation, and long-term monitoring. A logical implementation plan for restoration exists, with particular emphasis on the site's transformation into a bird sanctuary.	• **Trust Deficit and Institutional Mistrust**: Historical mistrust of institutions slows stakeholder engagement, particularly in the southern sub-region. Implementation of even strong legal instruments is perceived as slow, top-down, and non-inclusive. While the Maritime Office is technically effective, it faces challenges in overcoming perceptions of centralization and limited transparency, especially in socio-politically sensitive domains like tenure rights and economic redevelopment.
• **Stakeholder Coordination Platforms**: Regular stakeholder consultations, facilitated by the Maritime Office, support informed dialogue across administrative levels and interest groups. There is a growing recognition of the need for long-term strategic planning, and identification of key stakeholder functions, interests, and roles is already in place and regularly updated.	• **External Geopolitical and Structural Constraints**: Previous transnational collaboration on research and coordination was suspended in due to ongoing geopolitical tensions and military conflict. There is uncertainty regarding the ownership structure in Elbląg Harbour, which hampers transparency and strategic port-related investments—vital for regional economic revitalization.
	• **Weak Public Engagement and Environmental Awareness**: A low level of public and stakeholder understanding of biodiversity restoration and NbS benefits remains a major constraint. Outreach and awareness efforts are limited in scale and impact, especially in impoverished communities where immediate economic concerns outweigh long-term ecological planning.

8.2 Recommendations for strengthening progress on Roadmapped Actions

Progress on roadmapped governance actions in the Pilot Site could benefit from efforts that bridge the gap between existing institutional frameworks and the local socio-economic context. While the governance structure is clearly defined and operational—mainly through the Maritime Office—implementation remains uneven, with only 32% of actions assessed as beyond 50% completion. Continued support for the Maritime Office's convening role may help consolidate its function as a platform for transparency, coordination, and multi-stakeholder engagement. Additional steps could include expanding the frequency and reach of its public consultation mechanisms and exploring opportunities for more structured engagement across administrative levels, particularly between the provinces involved, whose divergent priorities have limited cross-boundary cooperation. Introducing simple joint advisory mechanisms, supported by existing stakeholder platforms, may also offer a pathway to encourage shared planning and information exchange.

At the same time, addressing persistent socio-economic asymmetries—particularly the challenges faced by the southern sub-region—could help improve engagement and implementation outcomes. The economic constraints affecting local actors may reduce their ability to participate in restoration planning or invest in related activities, and financial support from national sources may remain important in overcoming this. Linking restoration objectives with development opportunities may help draw broader support and bring ecological aims closer to community interests.

Monitoring frameworks and shared communication strategies could also support confidence-building and improve responsiveness across institutional levels. These could be developed gradually, using existing governance and legal instruments that are already recognised at the national and EU levels.

Finally, strengthening communication and visibility of project outcomes could help broaden local and subnational awareness. In this context, the successful 2024 bird inventory conducted on the artificial island—recording over 1800 nesting pairs across nine species and 118 species overall—has served not only as a valuable ecological baseline but also as a communication tool to illustrate restoration impacts. These results, including the emergence of the island as a significant nesting site for black-headed gulls and little terns, have contributed to wider outreach efforts and could be further integrated into local educational, tourism, and biodiversity communication initiatives. Continued use of such monitoring activities might support long-term dissemination, awareness-building, and potential scaling-up of restoration efforts in the Vistula Lagoon.

8.3 Analysis of Governance actions at Adaptation Measure level

8.3.1 Adaptation Measure Category 4: Artificial Habitat Creation

This category includes governance actions that directly or indirectly support the **creation and maintenance of artificial bird islands** in the Vistula Lagoon. The actions target enabling conditions such as stakeholder collaboration, communication, tenure rights, public awareness, and inclusive planning that are foundational for the ecological design, acceptance, and long-term management of artificial habitat infrastructures.

In Vistula Bay.

VISTULA LAGOON ACTION 11i: Promote and increase stakeholder engagement. Collaborate with the Maritime Office with research entities, promoting knowledge on biodiversity restoration among authorities of Vistula Lagoon communities and local inhabitants. Transfer knowledge and increase awareness about long-term benefits of introducing NbS and implementing biodiversity restoration.

This action aims to build local support for biodiversity restoration (including artificial bird islands) by increasing public understanding and scientific knowledge-sharing as a means towards economic reinvigoration of the Lagoon area. Collaboration with research institutions and the Maritime Office supports the development of a well-informed stakeholder base that can engage meaningfully in restoration design and stewardship, bearing in mind tourism-oriented revenue generation. Awareness of long-term benefits of Nature-based Solutions, especially those that can enhance local economy through ecotourism, is a prerequisite for legitimising and sustaining artificial habitat creation. Biodiversity-rich environs should be viewed as attractors for high-end tourists, seeking such areas for recreation.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• The Maritime Office possesses all necessary knowledge and institutional capacity to lead and coordinate biodiversity education and outreach. • Slowly but surely growing high-end tourism community in Poland – local authorities can provide services they require.	• Widespread lack of understanding of biodiversity restoration among local populations. • Insufficient perception of the link between healthy environment and economic opportunities among the authorities of Lagoon's communities. • Slow uptake of NbS principles due to socio-economic constraints induced by long-term economic degradation in the southern sub-region.

VISTULA LAGOON ACTION 11ii: Collaborate with the Maritime Office and its stakeholder consultation events and public outreach activities, and advocate for them to hold more frequent consultations with stakeholders having divergent interests.

This action reinforces the participatory governance foundation required for the planning and implementation of artificial habitats. Regular and inclusive consultations, especially with stakeholders who may have divergent interests (e.g., land use, fisheries, tourism), help to prevent conflicts and build legitimacy for artificial island placement and use. These consultations are also essential for integrating diverse local knowledge into biodiversity-based planning processes.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES, AND INSTITUTIONS**

ENABLERS	BARRIERS
• The Maritime Office already organizes and leads consultation and outreach activities.	• Participation and knowledge uptake are slow due to economic deprivation in the southern sub-region. • Limited cross-provincial cooperation further hampers outreach effectiveness.

VISTULA LAGOON ACTION 11iii: Participate in the informed dialogue with the Maritime Office on granting/withdrawing tenure rights with local authorities in the protection belt.

Clarifying and jointly deciding on tenure arrangements is vital for the legal designation and protection of artificial islands. This action aims to institutionalise transparent dialogue on tenure matters that intersect with conservation objectives, ensuring that artificial habitat zones are backed by stable legal recognition and administrative oversight. This process helps address ambiguities in land/sea use rights that could otherwise undermine artificial habitat governance.

GOVERNANCE INDICATOR: **RECOGNITION OF TENURE RIGHTS**

ENABLERS	BARRIERS
• The Maritime Office is already fulfilling its legal and procedural duties related to tenure governance.	• The uptake of tenure-related decisions is slow, hindered by weak inter-provincial collaboration and low prioritisation of habitat-related planning.

VISTULA LAGOON ACTION 11vi: Title: Improve collaboration between the two Provinces that administer the Site in most management aspects, including biodiversity restoration (i.e., Pomorskie—the spit, and Warmińsko-Mazurskie—the southern banks of the Site area).

Effective management of artificial bird islands—particularly those located at the intersection of provincial jurisdictions—depends on institutional alignment between regional authorities. This action targets the harmonisation of restoration and land-use policies between the Pomorskie and Warmińsko-Mazurskie provinces. Joint planning and implementation are crucial for ensuring the coherent integration of artificial islands into ecological and economic development strategies in the region. Furthermore, both Provinces should work toward establishment of cross-Province transportation routes (bus lines, local ferries), at least in spring/summer to improve local infrastructure targeting tourism.

GOVERNANCE INDICATOR: **COORDINATION AND COHERENCE**

ENABLERS	BARRIERS
• The Maritime Office provides a coordination platform that could be used to bridge inter-provincial gaps. Specifically, they could work as matchmakers between local transportation companies and local authorities in both Provinces.	• Divergent priorities between provinces and low political will have led to fragmented collaboration.

VISTULA LAGOON ACTION 12i and 12ii: Boost biodiversity restoration as an element of attractiveness of the Vistula Lagoon for tourists. Advocate for the Maritime Office to hold more frequent consultations with stakeholders having divergent interests.

This action reframes artificial habitat creation as a socio-economic opportunity. By positioning artificial bird islands as tourist attractions and biodiversity hotspots, the action aims to foster community buy-in and incentivize regional development that is aligned with ecological goals. The promotion of win-win strategies enhances public perception of restoration and supports long-term funding, especially from tourism-related investments.

GOVERNANCE INDICATOR: **DEVOLUTION**

ENABLERS	BARRIERS
• Public communication efforts have already highlighted the bird sanctuary function of the artificial island, particularly via social media.	• Transforming biodiversity into a significant tourism driver is a long-term process requiring sustained investment and public interest.

VISTULA LAGOON ACTION 14: Invest in stakeholder management and communications through actions that enhance transparency, accountability, and participation in the project.

This action supports the long-term success and social legitimacy of artificial habitat creation—particularly artificial bird islands—by fostering inclusive decision-making, effective communication, and increased transparency across stakeholders. As a concrete step toward this goal, the *2024 Inventory of Birds on the Artificial Island in Vistula Lagoon* has demonstrated early biodiversity gains, documenting 118 bird species (including over 1,800 nesting pairs) and positioning the island as one of the most important nesting sites in the coastal strip of Pomorskie Province. The inventory not only advances ecological monitoring but also provides a valuable communication and outreach tool to illustrate tangible restoration outcomes. Disseminated via social media and scientific channels, this data can help increase public engagement, counter scepticism, and promote broader support for biodiversity-focused restoration.

GOVERNANCE INDICATOR:

ENABLERS	BARRIERS
• The Maritime Office is actively pursuing transparency and stakeholder engagement goals. • The bird inventory demonstrates significant progress and provides a compelling narrative for outreach.	• Achieving full transparency and participation is a long-term process. • Socioeconomic disparities and political fragmentation across provinces reduce engagement uptake.

8.3.2 Remaining Governance Actions: Project Implementation and Governance Systemic Transformation

In the context of Vistula Lagoon, these actions address legal alignment, accountability, coordination, funding structures, and the integration of restoration priorities into formalised management frameworks.

VISTULA ACTION 1: Improve and reduce limitations/ deficiencies for effective management by enabling the resolution of differences caused by split competences between stakeholders.

This action addresses institutional fragmentation and promotes a unified management approach across sectors and jurisdictions, a prerequisite for upscaling artificial habitat interventions. The Maritime Office's strong leadership and jurisdiction provide a sound foundation, but persistent regional economic disparities and poor cross-provincial cooperation continue to undermine joint governance. The action is supported by the Maritime Office, which offers a valuable platform for inter-stakeholder exchanges and fosters cooperative priority-setting. However, a lack of interest at the provincial level—especially in Warmińsko-Mazurskie—combined with weak capital accumulation on the southern banks, reduces incentives for cross-provincial collaboration and limits the feasibility of unified governance.

VISTULA ACTION 2: Areas of responsibility should be well defined with clear long-term perspective and vision.

Clear and lasting definitions of tenure and institutional responsibility are essential for habitat permanence and legal certainty over artificial islands. Although the Maritime Office supports this, weak economic capacity and provincial disinterest hinder long-term governance clarity. The Maritime Office continues to serve as a venue for stakeholder engagement and dialogue, facilitating the pursuit of a common long-term vision. Nevertheless, progress is constrained by the same underlying issue: provincial-level disengagement and a stagnant local economy that currently limits the motivation and resources needed for long-term institutional commitments.

VISTULA ACTION 3: Expand investment in human capital across the project.

Upscaling artificial habitat creation requires institutional learning and local technical capacity, both of which this action aims to foster. However, implementation is impeded by underinvestment and structural economic constraints in the southern sub-region. Economic recovery is slowly generating a need for expanded human capital, which could support long-term restoration activities. However, the region remains dependent on long-term state funding, which is increasingly constrained by other national priorities such as defence, placing pressure on resources available for capacity-building in the environmental sector.

VISTULA ACTION 4: Increase collaboration among various administrative entities, particularly between the two provinces.

This action enables multilevel coordination essential for project-wide restoration coherence and trans-provincial implementation of artificial habitat solutions. Despite the clear role of the Maritime Office, mutual indifference between provinces and entrenched economic divides limit the reach of collaborative planning. This is the crucial domestic challenge in the Vistula Lagoon area. While the Maritime Office provides a functional coordination space, effective cross-provincial collaboration is undermined by persistent provincial indifference and socio-economic imbalance. These dynamics reduce the likelihood of sustained multi-level cooperation and remain a core obstacle to systemic restoration planning.

VISTULA ACTION 5: Improve connectivity among all involved administrative entities.

Improving institutional connectivity, including transboundary cooperation, is necessary to align cross-jurisdictional policy affecting the lagoon. However, no such collaboration exists currently, and the outlook remains bleak given geopolitical disruptions. This is the most urgent and difficult measure to be taken. The absence of any current transboundary or cross-provincial collaboration reflects deeper governance limitations, including provincial disinterest and limited capital on the southern banks. Although the Maritime Office facilitates some engagement, the entrenched administrative disconnect continues to be a central governance challenge.

VISTULA ACTION 6: Enable greater self-reliance of the southern banks of the lagoon.

This action seeks to empower marginalized areas to participate in and benefit from restoration initiatives, including stewardship of artificial habitats. Yet, structural impoverishment and lack of cooperation between provinces remain strong barriers. While the Maritime Office plays a facilitating role, the self-reliance of the southern banks depends on increased prioritization by Warmińsko-Mazurskie Province—an outcome that remains unlikely under current political and economic conditions. This lack of recognition severely constrains the region's capacity to engage meaningfully in restoration efforts.

VISTULA ACTION 7: Cultivate collaboration between the Maritime Office, local and provincial authorities and the research sector.

Research-informed decision-making and provincial coordination are critical to refining bird island design and habitat suitability. The Maritime Office provides a leadership platform, but implementation is undermined by low engagement from under-resourced regional actors. This collaboration is supported by both the leadership of the Maritime Office and the institutional structure offered by CORE-PLAT. However, implementation continues to be impeded by low interest and limited participation from provincial authorities, weakening the linkage between research, planning, and policy execution.

VISTULA ACTION 8: Maritime Office should retain its pivotal role in granting/withdrawing tenure rights.

This action supports legal certainty over land-sea interface management, which is fundamental to long-term artificial island governance. The institutional framework is clear, but uptake remains low among marginalized stakeholders. Although the Maritime Office's legal mandate provides institutional clarity and authority, the overall impact is limited by a lack of provincial interest and insufficient stakeholder engagement, especially from economically disadvantaged areas that stand to benefit most from tenure reform.

VISTULA ACTION 9i, 9ii: Generate gradual economic recovery of the area and seek economic development by expanding contacts with hinterland (e.g., Elbląg harbour expansion).

Strengthening the economic base enables long-term support for restoration and artificial habitat maintenance. However, the anticipated development is a long-term process dependent on large-scale state investment and infrastructure revitalization.

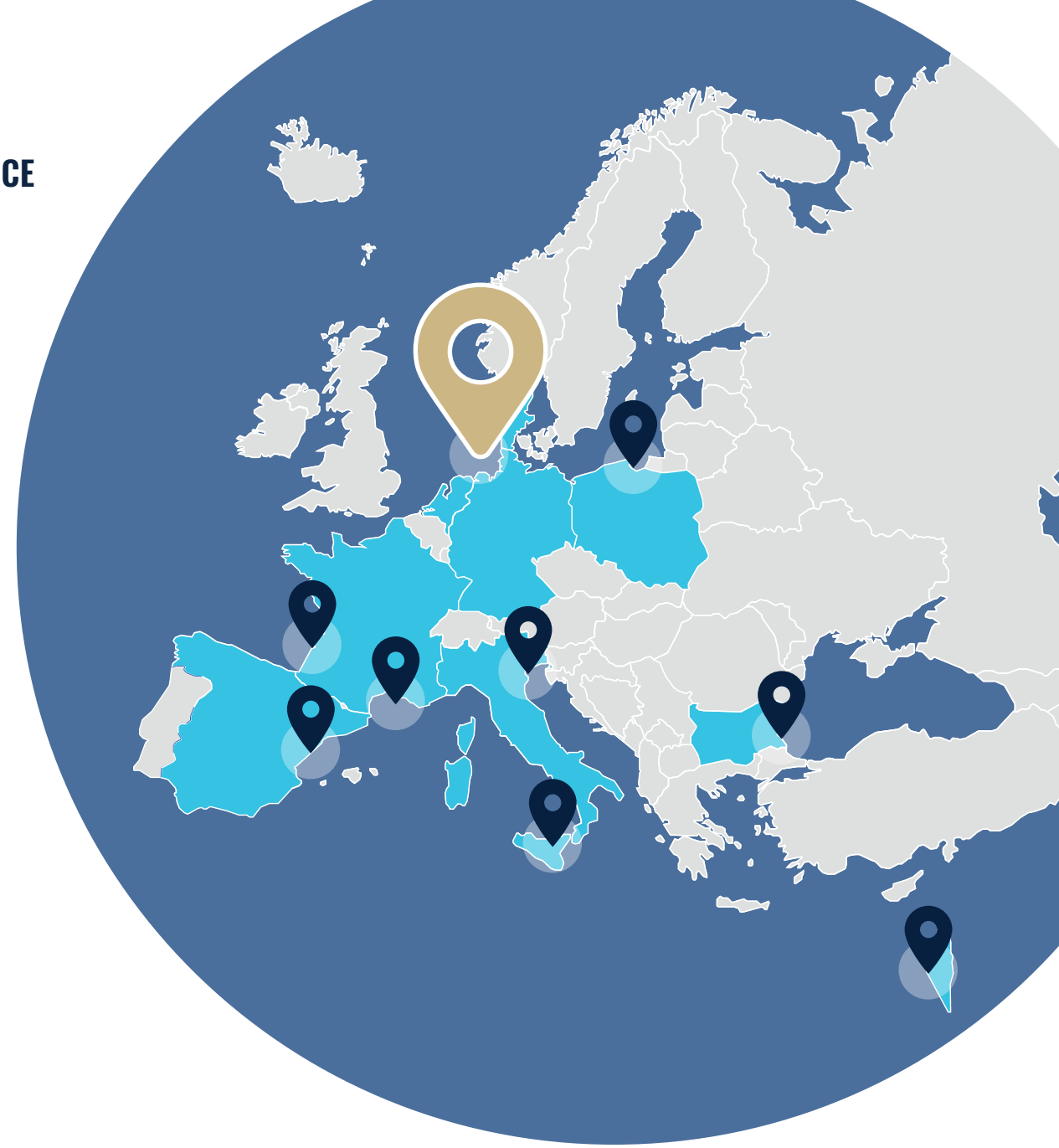
VISTULA ACTION 10: Advocate to improve transparency of management practices and actions on all administrative levels.

Transparent governance fosters stakeholder trust and informed participation in planning and maintaining artificial habitats. Progress is impeded by unclear ownership structures (e.g., Elbląg Harbour) and low attention from local authorities. An emerging enabler is the increasing awareness and sensitivity to corruption among the younger generation, which could help promote transparency and accountability in governance. However, progress is still hampered by a legacy of authoritarian governance and persistent distrust in institutions, which impairs open and participatory management.

VISTULA ACTION 13: Implement the identified governance reforms according to the improvement planning.

This action provides a pathway for institutionalizing governance structures required for long-term site management and upscaling. The Maritime Office offers strong coordination, but public mistrust and the need for visible positive outcomes hinder full legitimacy.

PILOT SITE GOVERNANCE BRIEFS



REST-COAST

9. WADDEN SEA

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With collaboration from pilot site teams

July 2025

Funded by the European Union

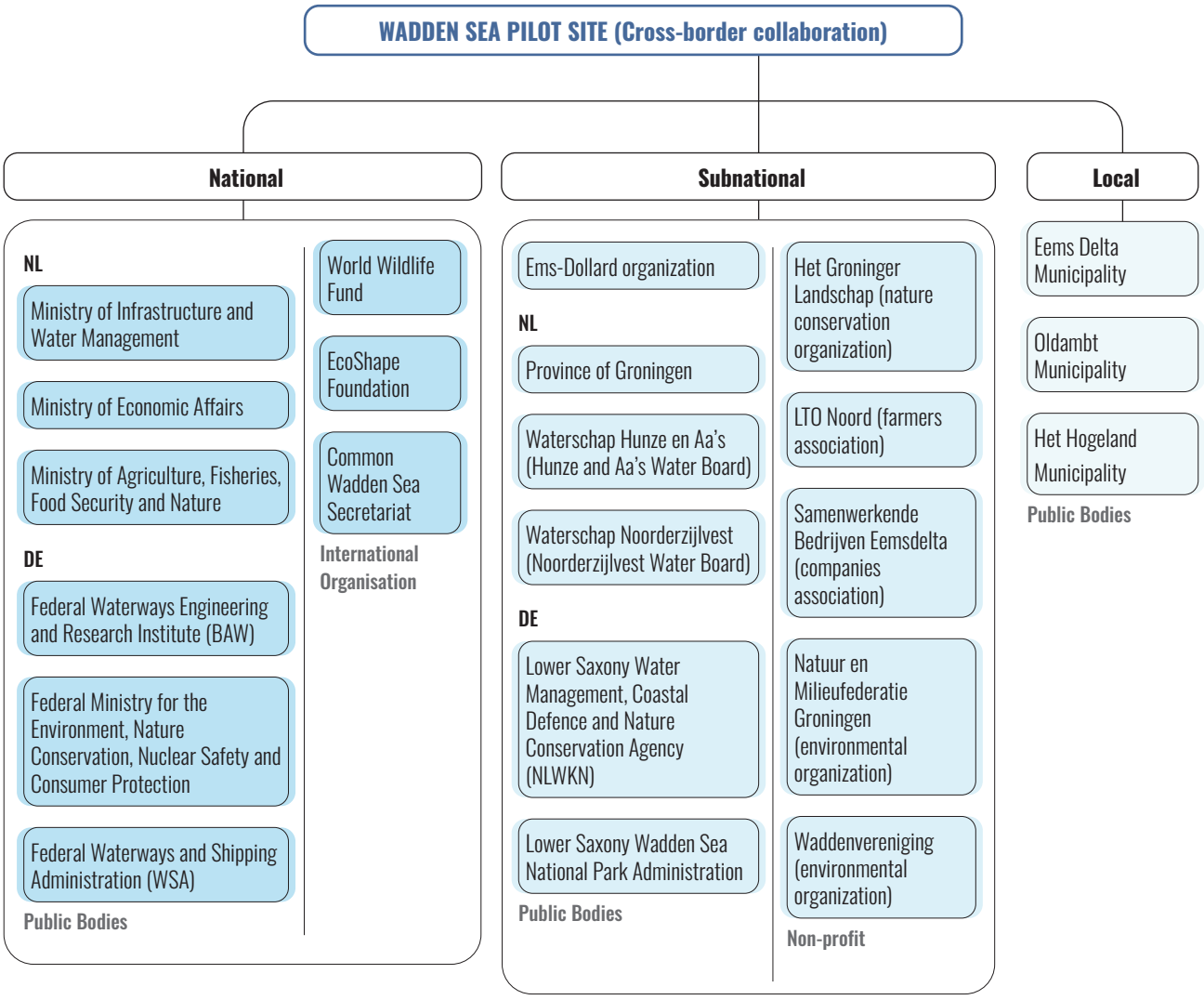
9 WADDEN SEA

The Wadden Sea's stakeholder map underscores a diverse array of actors involved emphasizing the central role of their engagement and revealing the importance and interest of the actors involved at subnational level. Unlike the other pilot sites, the Wadden Sea Pilot Site stands out due to its cross-border collaboration between the Netherlands and Germany. This cooperation is reflected in a stakeholder structure that spans multiple governance levels—national, subnational, and local—as well as involving international organizations, public bodies, and non-profit entities (Figure 9.1.).

9.1 Pilot-wide governance framework: State of play and analysis of roadmapped actions

Overall, the Wadden Sea Pilot Site has demonstrated a commitment on building a bold governance framework even before the REST-COAST project with a strong starting position regarding governance criteria. Nevertheless, it continues to improve on certain key criteria by progressing with its governance roadmap for restoration. The Site's strategy benefits from comprehensive stakeholder involvement, a clear governance structure, and alignment with national

Figure 9.1. **Stakeholder map for the Wadden Sea Pilot Site.**



and EU policies. Challenges remain, particularly in areas requiring coordination across multiple parties and adapting to regulatory constraints, but the site is well-positioned to continue advancing its restoration goals with ongoing efforts and strong foundational support.

This Pilot Site has had a high performance on the **governance criteria/indicators** since the project began. As illustrated in Table 9.1. and Figure 9.2., the most visible change between 2021 and 2024 is observed in the criterion for "*Strategic Vision, Learning and Direction*", which has seen a remarkable 20% improvement in metrics compared to the rest of indicators. This notable increase suggests the Pilot's efforts focused on advancing in this area. In fact, the site has achieved the ideal 100% performance in this indicator, highlighting its success towards developing and consolidating a solid governance framework for driving transformative change required. Overall, the Pilot achieved a remarkable 75% average across all governance indicators. The Wadden's **governance roadmap** proposed **18 specific actions**. Around a year after their provision, the review reveals that all actions have already been initiated (Figure 9.3.) and 56% have been completed. This demonstrates a strong commitment and success related to governance goals within the Site.

Table 9.1. Results from governance self-assessment at Wadden Sea Pilot Site by criteria in 2022 and 2024.

GOVERNANCE CRITERIA	Performance Rates		Variation from 2022 to 2024
	2024	2022	
1. Governance Structure and Legal Alignment	65%	63%	2%
2. Inclusive and Effective Decision-Making	68%	75%	-8%
3. Recognition Of Tenure Rights	70%	60%	10%
4. Diversity Of Knowledge, Cultures and Institutions	80%	80%	0%
5. Devolution	75%	70%	5%
6. Strategic Vision, Learning and Direction	80%	80%	0%
7. Coordination and Coherence	80%	80%	0%
8. Accountability	80%	80%	0%
9. Grievance and Conflict Resolution	60%	60%	0%
Average Performance	**73%**	**72%**	**1%**

The progress shown has been influenced by enablers and barriers that can be grouped into several key topics (Table 9.2.), each with distinct implications for its governance transformation and playing critical roles in shaping the effectiveness and success of restoration efforts. The Pilot Site has made notable progress in implementing a variety of actions aimed at improving governance, restoration practices, and stakeholder engagement. Regarding stakeholders, efforts have been focused on optimizing participation and fostering inclusivity in decision-making processes, with initiatives such as incorporating NGOs and holding regular meetings. The variety of stakeholders represented suggests the need for continued efforts to keep a close collaboration and address power imbalances, which are essential to achieving a more equitable and effective governance framework for the Pilot.

Figure 9.2. Governance Indicators/Criteria visualization. Comparison between 2022 and 2024 at Wadden Sea Pilot Site.

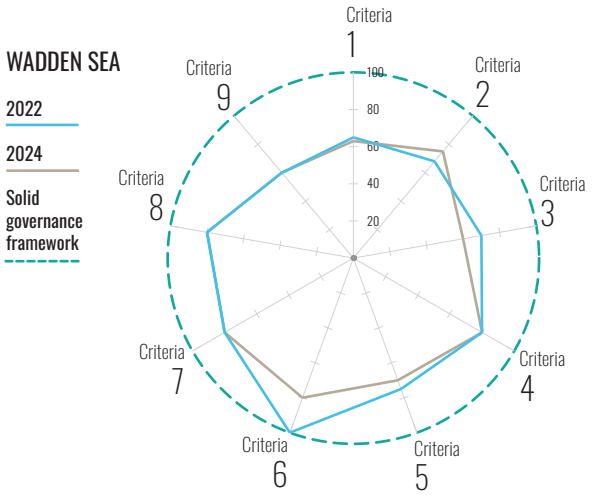
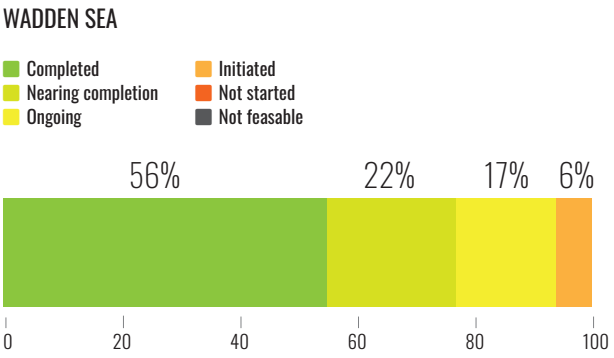


Figure 9.3. Progress on implementation of Roadmap actions in Wadden Sea Pilot Site.



Enablers such as the ecological masterplan, declaration of intent, and structured financial frameworks have also significantly contributed to the advancement of these actions. Moreover, the integration of restoration practices into broader policy frameworks, like the European Green Deal and the Natura 2000 maintenance plan, provides a strong policy backbone for these initiatives, enhancing the alignment of local efforts with national and international environmental objectives. Despite these efforts, challenges also remain. In particular, **barriers** around some conservation regulations which may limit flexibility, coordination complexities across multiple stakeholders, and the need for a shift from traditional conservation practices to a more holistic approach. Addressing these barriers is crucial for ensuring the long-term success of restoration efforts at the Site.

Salt Marsh construction in Delfzijl, Netherlands.

© EcoSha

Dollard Clay Ripening Plant.

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Table 9.2. Enablers and Barriers identified in Wadden Sea through the Roadmap implementation.

ENABLERS

- **Policy Integration and Alignment:** A key enabler for the Wadden Sea Pilot Site is the integration of restoration efforts into formal policy frameworks such as Natura 2000, the Green Deal, and other EU environmental policies. This ensures legal compliance while aligning actions with broader biodiversity and climate adaptation goals. The ecological masterplan for the Ems-Dollard region provides a coherent strategic framework linking site-specific interventions to national and EU-level targets. Existing financial structures (e.g., Natura 2000, ED2050, PAWG, Waddenfonds) provide stability and continuity for planning and implementation, especially for measures inside the dikes and artificial bird islands.

- **Strong Governance Frameworks for Flood Protection:** A fundamental enabler is the use of existing national flood safety policy frameworks, especially the High-Water Protection Programme (HWBP), to support and finance multifunctional adaptation actions such as Rijke Dijk, Double Dike, and Brede Groene Dijk. These measures benefit from clear regulatory mandates, administrative capacity, and financial structures developed for flood protection—which can be extended to incorporate Nature-based Solutions when objectives align.

- **Stakeholder Engagement and Collaboration:** The Wadden Sea Pilot benefits from a participatory governance culture—the "Polder model"—that fosters collaboration among institutional actors, civil society, and NGOs. All parties have been involved from the start, and NGOs are actively engaged through Steering Committee membership, contributing to the design, implementation, and monitoring of interventions like artificial bird islands. Tailored stakeholder engagement, recurrent meetings, and recognition of underrepresented local actors (e.g., community foundations) enhance legitimacy and co-ownership across all adaptation measures.

- **Strategic Vision and Governance Reforms:** A clear strategic vision underpins governance reforms at the Site. The Wadden Coast Development Roadmap, visions from Water Boards, and spatial planning tools such as the Groningen Omgevingsvisie and Omgevingsverordening facilitate alignment of regional actions with national and transboundary objectives. These instruments also allow the integration of restoration into broader land use planning and support the institutionalisation of pilot innovations, advancing systemic governance transformation.

- **Multi-Actor Consensus and Cross-Sectoral Learning:** There is broad institutional agreement on the need for climate resilience, with shared objectives articulated across multiple policy documents. The REST-COAST and Waterlands Green Deal initiatives have generated political momentum and visibility for sediment-based, nature-inclusive solutions. Platforms like ED2050 and CORE-PLAT foster cross-sectoral learning and data sharing, improving trust and enabling consistent interpretation of pilot outcomes.

BARRIERS

- **Regulatory and Institutional Constraints:** Conservation legislation in the Netherlands—especially linked to Natura 2000 obligations—prioritises species- and habitat-level protection and "no deterioration" standards, which can impede the implementation of dynamic ecosystem-based restoration strategies. These rules assume a stable or "natural state" which does not reflect the historical dynamism of the Dollard estuary, shaped by centuries of human and natural interactions. Additionally, sectoral funding and legislative structures (e.g., biodiversity vs flood protection vs agriculture) create institutional silos, limiting the integration of multi-benefit adaptation measures.

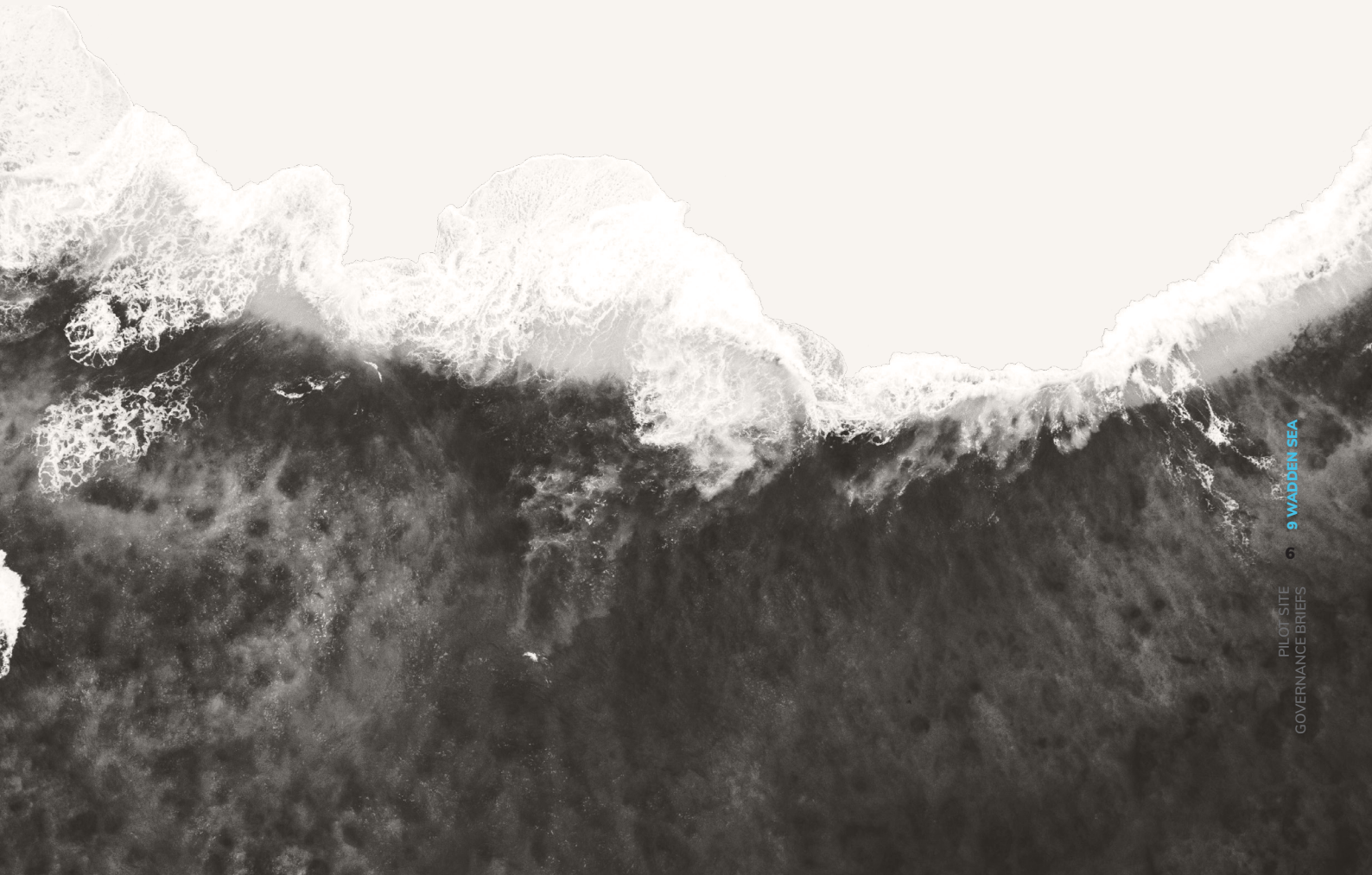
- **Cross-Sector and Cross-Border Coordination Challenges:** The lack of a legal entity representing the Ems-Dollard estuary as a unified system limits the development of a shared long-term vision across the Dutch–German border. Although relationships between NL and GE are strong and actions have not yet encountered major obstacles, systemic alignment may become more difficult at larger scales. Institutional asymmetries—such as bottom-up planning in NL vs top-down decision-making in GE—also complicate coordination under EU policies like the Green Deal and Restoration Law. Moreover, the sectoral organisation of finance, legislation, and responsibilities hampers the integration of restoration objectives across domains.

- **Funding and Maintenance Constraints:** While financial support exists for the execution phase of interventions, long-term maintenance funding is limited—particularly for measures such as saltmarsh inside dikes, land raising, and sediment extraction. Funding streams are often tied to specific sectoral aims, with few mechanisms for integrated financing. Small NGOs face capacity limitations that affect long-term participation unless adequately supported.

- **Institutional Inertia and Lack of Mandated Implementation Body:** The absence of a dedicated implementation organisation for restoration at the Site level creates gaps in coordinated execution and sustained oversight. Institutional inertia further slows the translation of Pilot outcomes into formal regulatory norms. This affects sediment management, habitat creation, and systemic reforms equally, especially where feedback loops from Pilot evaluations to policy updates are missing or underdeveloped.

- **Limited Ownership and Ecological Reference Standards:** Sediment ownership remains unclear, particularly in cross-border contexts, complicating extraction rights and responsibilities. Moreover, the absence of agreed-upon ecological reference conditions across stakeholders complicates the assessment and monitoring of restoration outcomes—especially for sediment reuse and wetland dynamics.

- **Political and Administrative Dependency:** The long-term success of inclusive governance models such as the Polder model depends on continued political and administrative commitment beyond the life of individual projects. Shifting political priorities, funding cycles, or leadership changes may fragment momentum or delay implementation of recommended reforms.



9.2 Recommendations for strengthening progress on Roadmapped Actions

The Wadden Sea Pilot Site has effectively initiated the process of implementing all actions outlined in its roadmap, with none categorized as "Not Started" or "Not Feasible." This proactive stance demonstrates a strong commitment to advancing on adequate governance objectives for restoration. Despite that, the feasibility of ongoing actions also hinges on overcoming the identified barriers, particularly regulatory constraints and coordination challenges. The tipping points for these actions will likely involve securing long-term funding, adapting regulatory and policy frameworks to support a more integrated restoration approach, as well as enhancing stakeholder engagement to foster a shared vision. Addressing these issues will be crucial to achieving the Site's long-term governance goals and ensuring the sustained success of restoration efforts.

9.3 Analysis of Governance actions at Adaptation Measure level

9.3.1 Adaptation Measure Category 1: (Coastal) Wetland Restoration

This category includes governance actions that directly support the **long-term restoration and expansion of salt marshes in the Wadden Sea, specifically in the Ems Estuary (Dollard region).** The physical intervention is underway in the western Dollard and is a central focus of restoration at this site. Saltmarsh expansion provides biodiversity benefits and contributes to natural flood buffering, sediment stabilisation, and landscape adaptation under sea-level rise. However, marsh-building efforts in the Ems-Dollard face institutional and regulatory constraints. While the Netherlands has adopted participatory, bottom-up approaches to planning, there is no formal cross-border governance structure for the Dollard, and coordination with Germany (which follows a more top-down model) must be navigated through bilateral cooperation. At the national level, Dutch conservation regulation still centres on maintaining habitat and species status under Natura 2000 obligations, which complicates the implementation of dynamic, system-based interventions like large-scale saltmarsh creation. These governance actions seek to shift restoration from a project-based model toward integrated, institutionalised implementation supported by adaptive planning frameworks and formal policy alignment.

The Groningen Landscape.
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WADDEN SEA ACTION 8i: Communicate and advocate with administrative and regulatory officials to integrate restoration practices into relevant policy structures by implementing first projects in "N2000-plan supplemental maintenance plan Eems-Dollard". Share lessons learned with the policy makers and provide them with the necessary input for changing policies. This can then be used as an example for developing the coastal zone, integrating it into different policies and supporting the upscaling of different pilots.

This action directly supports the governance backbone necessary to enable the scaling of saltmarsh restoration in the Ems estuary, particularly in the Dollard region where groyne-supported salt marsh growth is a key ecological intervention. By formalising restoration practices within the supplemental Natura 2000 maintenance plan, the action ensures long-term regulatory and financial alignment for continued wetland expansion and stewardship. Rather than treating wetland interventions as discrete projects, this action aims to embed restoration goals within a statutory planning and policy framework. This approach is critical to sustaining marsh-building processes—which unfold over decadal timescales—and to ensure that local experimentation informs broader regulatory norms. By institutionalising what is now being piloted, the action advances a critical governance shift: from temporary project-based management to integrated and permanent restoration planning. It also helps translate the technical and scientific outcomes of the REST-COAST project into actionable administrative and regulatory guidance.

The action further encourages the transmission of lessons learned from implementation to policy officials, offering a direct feedback loop between ground-level intervention and upper-level planning. In doing so, it positions the Wadden Sea Pilot Site as a model for other Natura 2000 areas undergoing similar coastal transformations. It is particularly relevant in the context of ED2050 and national climate adaptation strategies, as it exemplifies how wetland restoration and policy coherence can converge in a structured, replicable manner.

Despite its strategic importance, the action must contend with long-standing structural barriers, including regulatory inertia and institutional resistance to shifting from species-focused conservation to a broader ecosystem-based, adaptive management approach. This shift remains a sticking point within certain agencies and stakeholder groups. Overcoming these barriers will require continued engagement across sectors, including with actors more traditionally focused on habitat protection.

GOVERNANCE INDICATOR: **COORDINATION AND COHERENCE**

ENABLERS	BARRIERS
• The ecological masterplan for the Ems-Dollard links site-specific wetland interventions to broader climate and biodiversity targets. • The declaration of intent from multiple stakeholders formalises commitment to integrating restoration in statutory planning. • Natura 2000 and climate adaptation financial structures provide a platform for funding restoration inside dikes and for bird island initiatives. • REST-COAST and WaterLANDS Green Deal initiatives provide additional political momentum for embedding sediment and saltmarsh strategies in broader adaptation policy.	• Regulatory frameworks tied to Natura 2000 conservation obligations prioritise maintaining current habitat conditions (e.g., "no deterioration"), which can impede dynamic ecosystem-based interventions such as large-scale marsh growth. These frameworks were designed to stabilise habitats and species distributions but may not accommodate geomorphologically evolving systems like the Dollard. • The concept of a "natural state" assumed in some conservation approaches clashes with the Dollard's inherent dynamism—a system shaped by centuries of natural and anthropogenic changes. This creates a philosophical mismatch between restoration logic and current regulatory expectations. • The absence of mandated monitoring-feedback mechanisms between Pilot results and policy review slows the formalisation of new practices. • Cross-border divergence in governance models (top-down in Germany, bottom-up in the Netherlands) complicates alignment, especially without a legal entity representing the Dollard as a unified estuarine system.

WADDEN SEA ACTION 9i, 9ii, 9iii, 9iv: Revise stakeholder management planning by increasing the recurrence/frequency of meetings, designing tailor-made approaches to communications and outreach. Also, by making the decision-making process more inclusive by integrating new groups of stakeholders, such as relevant NGOs. Finally, ensure that decision-making at the lowest possible scale is also considered.

This action enhances the participatory governance architecture essential to saltmarsh restoration. Effective marsh-building requires coordination among a wide range of actors including municipalities, water boards, NGOs, and landowners. By improving stakeholder management processes—both in structure and frequency—this action supports the sustained collaboration necessary for planning and maintaining saltmarsh systems across temporal and spatial scales. The action is also aligned with the Netherlands' Polder model of decision-making, which has enabled broad inclusion of actors from the start. However, formalising this engagement process ensures that marsh restoration is not vulnerable to political turnover or waning interest post-pilot. Tailoring communication approaches for different stakeholder types (e.g., technical institutions *vs* community groups) helps build coalitions that can persist through planning, implementation, and post-construction maintenance.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING AND DIRECTION**

ENABLERS	BARRIERS
• A culture of collaboration and co-ownership exists among institutional and civil society actors. • The CORE-PLAT platform and regional steering committees have initiated inclusive engagement processes.	• Long-term funding constraints limit the ability to maintain stakeholder involvement over time, particularly beyond the execution phase. • Lack of integrated governance tools and sector-specific funding frameworks restrict coordination and strategic alignment across restoration categories.

WADDEN SEA ACTION 12: Invest in stakeholder management and communications through actions that enhance transparency, accountability, and participation in the project.

This action supports the social infrastructure required for sustained saltmarsh development in the Dollard. Transparent communication and accountability mechanisms help legitimise interventions such as groyne construction and marsh planting, which may be contested without clear public benefits and community alignment. The action also ensures that project narratives are shared across stakeholder groups, avoiding fragmentation and promoting trust. While participatory processes exist, the action aims to institutionalise these beyond pilot-specific momentum. Communication strategies must respond to both technical complexity and public perceptions, especially in multifunctional landscapes where restoration intersects with farming, recreation, and regional development.

GOVERNANCE INDICATOR: **COORDINATION AND COHERENCE**

ENABLERS	BARRIERS
• Existing environmental legislation provides a framework for transparent planning and public information disclosure. • A consistent communication strategy has been applied via official websites and regional engagement platforms.	• Coordination across six lead parties is resource-intensive and often slow due to differing internal priorities. • Changing political conditions and the absence of a legally mandated entity representing the estuary as a whole constrain long-term continuity in communication and oversight.

9.3.2 Adaptation Measure Category 2: Sediment Management

This category includes governance actions that support sediment-based restoration measures in the Pilot Site, particularly **clay ripening** and **the extraction and reuse of dredged material from the harbour of Delfzijl**. These interventions are central to transforming excess sediment from a problem into a resource—supporting dike reinforcement, saltmarsh expansion, land elevation, and adaptive coastal zone development. The Ems-Dollard region is characterised by dynamic sediment transport processes and high turbidity, presenting both challenges and opportunities for nature-based sediment strategies. Projects such as Rijke Dijk, Brede Groene Dijk, and Double Dike are underpinned by clay ripening and re-sedimentation trials. However, sediment management remains heavily fragmented across governance levels, and issues such as sediment ownership, cross-border alignment, and sector-specific mandates (e.g., flood safety, conservation, navigation) pose ongoing barriers to coherent implementation. Governance actions aim to normalise sediment reuse and ripening within both national and EU policy frameworks, improve transboundary coordination, and institutionalise the processes required to scale successful pilots.

WADDEN SEA ACTION 1: Present restoration activities as a formal task in existing policy documents. Input development for the ED2050 program is underway (through Pilot Sites and knowledge-sharing programs) to collaborate on policy making and to improve approaches for climate adaptation in regular plans such as N2000-maintanance or development plans.

This action lays the foundation for integrating sediment restoration approaches—particularly clay ripening and beneficial use of dredged material—into statutory and spatial planning frameworks across the Wadden Sea region. By positioning restoration as a formal task in relevant policy instruments, it creates continuity for sediment management efforts initiated under pilot schemes, like ED2050 and Natura 2000 site plans. It also ensures that sediment-based solutions are no longer treated as isolated experiments but are embedded in multi-level governance strategies. Such formalisation is critical to ensuring sediment interventions align with biodiversity goals, flood resilience needs, and long-term spatial development objectives. The action also enables structured collaboration between stakeholders and institutions across scales, particularly by linking scientific outputs and Pilot outcomes to legal and planning frameworks. In doing so, it operationalises knowledge-sharing outcomes from REST-COAST within a governance framework that is prepared to institutionalise sediment restoration as a long-term climate adaptation strategy.

GOVERNANCE INDICATOR: **GOVERNANCE STRUCTURE AND LEGAL ALIGNMENT**

ENABLERS	BARRIERS
• The declaration of intent among stakeholders provides a strong political and collaborative foundation for embedding restoration goals in policy. • The ecological masterplan offers a coherent, multi-actor vision that links sediment interventions with biodiversity targets. • Existing financial structures (e.g., within ED205, Natura 2000, Waddenfonds, PAWG, and in some cases HWBP, such as for dike-related applications) facilitate alignment between sediment reuse pilots and statutory planning documents.	• Environmental regulations favour species-level conservation objectives, which may impede the flexible, systems-based management required for large-scale sediment operations. • A focus on “habitat enforcement” among some actor’s limits uptake of dynamic sediment strategies central to adaptive restoration. • The lack of a mandated monitoring-feedback mechanism between Pilot outcomes and regulatory planning processes slows the formal uptake of innovative practices. • No clear legal ownership of sediment, making cross-jurisdictional extraction difficult, particularly if downstream impacts affect other countries.

WADDEN SEA ACTION 3: Acknowledge among stakeholders and institutions over the collected data and the implementation of restoration activities.

This action supports mutual institutional recognition of monitoring and modelling data related to sediment management. For clay ripening and sediment reuse to be scaled, actors must share assumptions and agree on the interpretation of results from Pilot trials. This ensures data from REST-COAST and other initiatives (e.g., EcoSediment) are not only gathered but also actively used in decision-making.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES AND INSTITUTIONS**

ENABLERS	BARRIERS
• Existing datasets from ongoing clay ripening and sediment recovery experiments. • Platforms for multi-stakeholder review via CORE-PLAT and regional steering committees.	• Some stakeholders continue to view sediment work as a nature conservation risk, rather than a climate adaptation asset. • Lack of shared ecological reference conditions complicates the assessment of sediment-related restoration success.

WADDEN SEA ACTION 8ii: Communicate and advocate with administrative and regulatory officials to integrate restoration practices into relevant policy structures by contextualizing these integrations into the framework of the European Green Deal, the imminent EU Restoration Law, and other environmental policies (e.g., the EU Habitats Directive, EU Birds Directive, etc.).

This action extends sediment governance efforts beyond the national scale by advocating for the importance of restoration within the broader context of European policy frameworks, including the EU Green Deal, the forthcoming Restoration Law, and established biodiversity directives. Its strategic aim is to ensure that sediment management is recognised as a legitimate and necessary tool for meeting EU-wide nature restoration and climate resilience objectives. This action also enhances the advocacy of soft sediment interventions and supports the discourse to include them in national and regional permitting systems. Additionally, it facilitates transboundary knowledge transfer and alignment, particularly relevant for the trilateral Wadden Sea cooperation and the harmonisation of sediment strategies among Dutch, German, and Danish coastal authorities. In the Ems-Dollard region, where sediment interventions are technically and ecologically complex, this action supports the governance framework needed to upscale from experimental to mainstream approaches as well as REST-COAST's upscaling goals by enabling institutional convergence around sediment-focused Nature-based Solutions. Importantly, it is backed by the Ecological Sediment Management Strategy, which reflects a shared Dutch–German commitment to improving and conserving the estuary while balancing ecological and economic values—despite different policy framings and decision-making processes on each side of the border.

GOVERNANCE INDICATOR: **COORDINATION AND COHERENCE**

ENABLERS	BARRIERS
• The Green Deal initiatives (REST-COAST and WaterLANDS) have created political momentum and visibility for nature-based sediment strategies. • The nature policy framework for the Wadden Sea supports cross-referencing of national plans with EU directives, facilitating alignment. • The Ecological Sediment Management Strategy fosters shared Dutch–German alignment in balancing ecological and economic goals in the estuary.	• Regulatory complexity at the EU–national interface may limit consistent implementation across Member States. • Cross-border institutional asymmetry: Germany implements measures via top-down structures, while the Netherlands relies on participatory bottom-up planning, complicating shared visioning. • Institutional isolation could slow integration of sediment management practices into biodiversity and climate adaptation policy streams.

WADDEN SEA ACTION 10i, 10ii: Continue to program and partner with organisations in the Eems-Dollard 2050 program. Make use of the momentum built from the acquisition of the new license to proceed with the project by leading discussions and open communication with all organisations of the ED2050 program. Increase discussion and knowledge-sharing across stakeholders about the differences between the Eems-estuary and Wadden Sea to increase consensus and open discussion.

This action supports sediment governance by reinforcing the ED2050 program as a multi-actor platform for experimentation and co-development. It fosters ongoing stakeholder interaction to support both the implementation and scaling of sediment interventions. Given the cross-border and interdisciplinary nature of clay ripening and dredge material reuse, consensus-building around data, values, and long-term vision is vital. The action also supports the broader REST-COAST goal of upscaling by connecting Pilot lessons to wider institutional communities and policy dialogues, both within the Netherlands and with German counterparts.

GOVERNANCE INDICATOR: **DIVERSITY OF KNOWLEDGE, CULTURES AND INSTITUTIONS**

ENABLERS	BARRIERS
• All relevant stakeholders are already engaged in the ED2050 framework. • Strong knowledge base and communication structures enable trust and data sharing.	• Sediment strategies still seen as experimental, limiting buy-in for scaling. • Complexities in cross-border cooperation can lead to divergent interpretations and slow convergence of planning frameworks.

9.3.3 Adaptation Measure Category 3: Restoring Hydraulic Connectivity

Restoring hydraulic connectivity in the Wadden Sea Pilot Site—specifically through the **conversion of the Groote Polder to wetland**—involves re-establishing natural water flows between previously embanked areas and the broader estuarine system. This category represents a significant ecological and spatial intervention, requiring coordinated governance across scales, robust stakeholder involvement, and alignment of spatial development frameworks with restoration objectives. Hydraulic reconnection in the Ems-Dollard area presents unique governance challenges, including the realignment of land uses, potential impacts on agricultural stakeholders, and the integration of restoration into flood risk strategies. The following actions support these ambitions by facilitating participatory decision-making, improving stakeholder engagement, and ensuring that ecological knowledge and spatial planning tools are mobilised coherently.

Eems-Dollard.
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WADDEN SEA ACTION 4: Make decision-making processes inclusive with recurrent stakeholder meetings, and stakeholders at the lowest possible scale need to also be considered.

This action enhances governance processes needed for converting polders to wetlands by ensuring local voices are systematically included. Hydraulic reconnection measures can directly affect landowners, municipalities, and water boards, and thus require strong participatory architecture. Local farmers or civil society groups may initially be resistant, so long-term support and legitimacy depend on meaningful inclusion in planning and dialogue. This action also reinforces the legitimacy and responsiveness of polder-to-wetland conversion by rooting decisions in community input and multi-level consultations—particularly important in dynamic, multifunctional areas like the Dollard.

GOVERNANCE INDICATOR: **INCLUSIVE AND EFFECTIVE DECISION-MAKING**

ENABLERS	BARRIERS
• The "Polder model" participatory legacy facilitates constructive dialogue and co-creation with stakeholders. • Existing platforms such as ED2050 support structured engagement processes.	• The absence of a mandated long-term engagement structure post-project may weaken continuity of inclusive governance. • Stakeholder fatigue or asymmetries in power/resources may lead to uneven participation, particularly in rural areas.

WADDEN SEA ACTION 7: Identify all relevant stakeholders at different management levels (local, supralocal, national) by increasing the representation of the local communities (which are underrepresented with few local foundations).

Accurate stakeholder mapping is a prerequisite for participatory implementation of any adaptation measure. This action ensures that locally grounded perspectives are included in restoration planning and monitoring. Converting a polder into a wetland involves negotiation across competing interests—agriculture, flood safety, conservation—and must be built on a solid understanding of who is impacted and who has authority. This action strengthens the stakeholder architecture needed for successful reconnection by identifying underrepresented local actors and ensuring they are brought into the planning and implementation process. In the case of Groote Polder, increased representation of community organisations ensures that landscape and identity values are taken into account alongside ecological and hydrological criteria. It also supports adaptive co-management by clarifying responsibilities across governance levels.

GOVERNANCE INDICATOR: **GOVERNANCE STRUCTURE AND LEGAL ALIGNMENT**

ENABLERS	BARRIERS
• There is an existing track record of cross-sectoral collaboration in the region, especially under ED2050. • Participatory mapping and stakeholder engagement have been used in previous nature development initiatives (e.g., Double Dike).	• Institutional fragmentation and sectoral financing models can obscure who has actual influence or responsibility for key decisions. • Limited capacity or recognition of small local organisations may result in tokenistic participation unless actively supported.

WADDEN SEA ACTION 6: Review national/regional/local authority stakeholder management and devolution strategies to identify any areas or strategies that could be implemented at the Pilot Site scale to increase devolution.

Although large-scale hydraulic interventions like dike relocation or wetland reintroduction fall under national flood protection frameworks, aspects such as land-use changes, ecological restoration, and stakeholder mobilisation often benefit from more devolved governance. This action supports the tailoring of broader governance strategies to the pilot scale, identifying where more flexibility or localised authority can enhance implementation. However, it's important to clarify that flood protection itself remains centrally managed through the High-Water Protection Programme (HWBP). Within this constraint, the action seeks opportunities to improve local ownership and responsiveness, especially for multi-benefit measures like the Groote Polder conversion. Local water boards maintain and monitor dike defences to meet these national standards, submitting sections to HWBP when major reinforcements are needed. Provinces (e.g., Groningen) and municipalities may allocate regional funds to integrate additional adaptation or ecological benefits into flood plans, but they cannot override the national flood safety framework. This action therefore focuses on identifying devolution opportunities where ecological and spatial planning measures (such as polder conversion) can be locally driven—while recognising that dike reinforcement itself remains a national responsibility. By reviewing existing stakeholder management and devolution strategies, the action seeks pockets of local discretion to advance wetland reconnection, community engagement, and multi-benefit design within the boundaries set by HWBP and water boards.

GOVERNANCE INDICATOR: **DEVOLUTION**

ENABLERS	BARRIERS
• Provincial and municipal authorities can co-fund or steer spatial development to align with ecological and regional values. • Local water boards maintain primary flood infrastructure and can support nature-compatible designs.	• National flood safety standards dictate allowable interventions, limiting devolved discretion in strategic dike realignments (centralised HWBP rules limit local authority over core flood protection infrastructure). • Cross-sectoral funding is challenging to coordinate due to strict demarcation of mandates (e.g. flood safety vs biodiversity vs agriculture), making difficult to combine flood safety budgets with ecological restoration resources, except where water boards choose to allocate co-funding for multi-benefit measures

Aerial photo, New Statenzijl 12.
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9.3.4 Adaptation Measure Category 4: Artificial Habitat Creation

This category refers to governance actions that support the **creation and long-term stewardship of artificial habitats such as bird islands in the Wadden Sea**. These habitats serve dual ecological functions—providing safe breeding and foraging areas for protected bird species, while enhancing biodiversity and resilience across the estuarine system. In the Ems estuary, the artificial bird island is a central REST-COAST intervention with both ecological and governance implications. Actions in this category focus on reinforcing stakeholder engagement structures, particularly the inclusion of NGOs and civil society, which are essential to ensuring long-term legitimacy, funding, and adaptive monitoring of these habitats. Given the sensitive environmental context and high visibility of the intervention, broad-based participation and transparency are pivotal to successful implementation and replication.

WADDEN SEA ACTION 5: Optimise and improve stakeholder involvement by including NGOs.

This action directly supports the governance backbone for artificial habitat creation by reinforcing inclusive stakeholder engagement—especially with NGOs—in the planning, implementation, and adaptive management of artificial bird islands in the Wadden Sea. NGOs play a crucial role in bridging technical restoration goals with societal interests, particularly in high-value conservation zones such as Natura 2000 areas outside the dikes. Their contributions span habitat design, post-construction ecological assessment, public outreach, and long-term monitoring and stewardship. In the Ems estuary context, NGO involvement has been formalised through their participation in the Steering Committee, which enhances their influence over both strategic direction and operational decisions. The participatory culture so far has facilitated collaboration across the public stakeholders and institutional actors, thereby reducing resistance and reinforcing community support for interventions such as the artificial bird island.

GOVERNANCE INDICATOR: **GRIEVANCE AND CONFLICT RESOLUTION**

ENABLERS	BARRIERS
• All parties are involved from the start, which has fostered a culture of collaboration and co-ownership among institutional actors and civil society. • The action benefits from a strong participatory legacy—the "Polder model"—which promotes shared decision-making and reduces stakeholder resistance. • NGO involvement in the Steering Committee ensures their perspectives influence strategic and operational decisions around habitat creation and monitoring.	• The success of Polder model depends on sustained political and administrative commitment to inclusive governance beyond the project timeframe.

Seal viewing wall, Dollard, Groningen Landscape.
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9.3.5 Adaptation Measure Category 5: Climate-Resilient Food Production

This category includes governance actions that support the adaptation of agricultural practices to sea-level rise and climate variability, with a particular focus on farmland raising as piloted in the Ems estuary. This intervention involves **elevating agricultural lands through sediment deposition** to maintain their viability under future climate scenarios while preserving their productivity and ecological function. Governance actions in this category aim to align long-term spatial planning with adaptation goals, facilitate cross-sector coordination, and embed experimental land-raising measures into standard flood safety and agricultural development frameworks. Farmland raising, as a hybrid strategy, depends on integrated policy alignment across nature restoration, food production, and flood protection mandates.

WADDEN SEA ACTION 2: Long-term visions in policies that are already agreed on in the Netherlands should be implemented in regional and local spatial planning instruments.

This action supports the institutionalisation of farmland raising by ensuring that national climate adaptation and restoration visions—including those under the ED2050 framework—are translated into spatial planning instruments at the regional and municipal levels. Farmland raising projects, like other sediment-based adaptation strategies, require multi-decadal planning and stable policy commitments. This action helps bridge the gap between high-level vision statements and actionable, place-based implementation. By aligning local and regional land-use plans with national adaptation strategies, this action strengthens the continuity of farmland raising efforts. It ensures that these interventions are not treated as experimental or temporary, but as integral components of long-term adaptation and agricultural viability. Importantly, it also allows integration with ongoing flood protection and restoration funding programmes, such as the HWBP, PAWG, and Waddenfonds, which may offer indirect support for land-raising projects when strategically aligned.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING, AND DIRECTION**

ENABLERS	BARRIERS
• Existing strategic visions under ED2050 and national nature-based adaptation agendas support land-raising as a climate-resilient solution. • Multi-actor consensus on the necessity of adapting agricultural zones to future sea-level rise reinforces support for spatial integration. • Political momentum through Green Deal initiatives and landscape-level adaptation coalitions has raised the visibility of farmland raising.	• Lack of integrated financial mechanisms to jointly fund climate adaptation and agricultural measures—current structures remain sectoral. • Institutional complexity and inertia may hinder the uptake of innovative land-use solutions like farmland raising at local levels.

9.3.6 Adaptation Measure Category 6: Flood Protection

This category addresses governance actions that enable the implementation and long-term integration of **nature-based and hybrid infrastructure for coastal flood protection**. Flood protection in this context is not solely a technical or hydraulic challenge, but a socio-institutional one: governance systems must be capable of integrating climate resilience objectives into spatial planning, policy coherence, and multi-stakeholder coordination. Adaptive governance structures are therefore critical to align local, provincial, and national planning instruments, and to ensure that flood protection strategies are both ecologically sound, technically feasible, and logistically upscalable.

WADDEN SEA ACTION 11: Implement the identified governance reforms according to the improvement planning.

This action is central to enabling integrated, long-term flood protection strategies in the Wadden Sea. These reforms could provide the institutional backbone for nature-based flood protection interventions, including nature-inclusive dike reinforcements that combine traditional coastal defences with marsh and intertidal habitat buffers. By advancing implementation of the improvement planning, this action helps move beyond conceptual or planning phases toward concrete institutional uptake and operationalisation. It aligns regional visions and water board mandates with strategic flood protection goals, ensuring that infrastructure development is embedded within an adaptive and participatory governance framework. Moreover, it enables integrated action across multiple scales—from national legislation to regional water authorities—thereby reinforcing coordination and accountability. The action's governance significance lies in its role as a transversal enabler: it supports not only flood protection, but also other adaptation measures such as sediment management and wetland restoration by ensuring that institutional mandates and regulatory tools are effectively harmonised.

GOVERNANCE INDICATOR: **STRATEGIC VISION, LEARNING AND DIRECTION**

ENABLERS	BARRIERS
• The coastal programme of the Province of Groningen (although not directly in charge of flood protection, but who work with the water board to align spatial development plans with flood protection goals), provides a regional-scale strategic foundation for implementing hybrid flood protection interventions. • The Wadden coast development roadmap and visions of local Water Boards establish long-term planning frameworks with integrated climate adaptation priorities. • Multi-actor consensus on climate resilience has led to shared objectives across policy documents and institutional levels.	• Laws and regulations must be adjusted to support newer, more flexible governance arrangements—a process that is complex and time-consuming. • The absence of a mandated implementation organisation creates challenges for coordinated execution and sustained oversight. • Structural reform remains dependent on political cycles and long-term administrative commitment, which can delay progress or fragment continuity.

9.3.7 Remaining Governance Actions: Project Implementation and Governance Systemic Transformation

The remaining action below addresses systemic elements such as participatory structures, stakeholder mapping, multi-level coordination, and integration of knowledge into decision-making. It helps establish the governance conditions necessary for effective design, implementation, and upscaling of adaptation measures such as sediment reuse, marsh expansion, artificial habitat creation, and nature-inclusive flood protection. By strengthening institutional relationships, enhancing transparency, promoting inclusion, and improving policy coherence, these actions function as foundational governance reforms that directly support adaptive restoration activities across the Wadden Sea's ecological and administrative landscape.

Wadden Sea ACTION 8iii: Communicate and advocate with administrative and regulatory officials to integrate restoration practices into relevant policy structures by implementing plans in the 'Omgevingsvisie for the Province Groningen' and develop/apply together new rules (Omgevingsverordening) for the province.

This action supports the systemic integration of restoration practices into regional spatial planning frameworks by embedding adaptation goals into the *Omgevingsvisie* and *Omgevingsverordening* of the Province of Groningen. It strengthens the upscaling and institutionalisation of REST-COAST interventions—including marsh expansion, sediment reuse, and habitat creation—by ensuring these are reflected in formal policy instruments. The alignment of restoration measures with provincial planning enhances long-term coherence and facilitates cross-sectoral application of adaptive strategies within environmental and land-use regulations.

The integration of restoration practices into Groningen's Omgevingsvisie must also acknowledge the cross-border nature of the Ems-Dollard estuary. Despite good relationships and broadly aligned ecological outcomes, a major governance challenge remains: there is no legal entity representing the Dollard as a single system. The Netherlands and Germany follow different planning trajectories—bottom-up and participatory in NL, top-down in DE—which creates friction in long-term alignment. The lack of a shared vision for the future of the estuary limits systemic coherence across national boundaries. While not a barrier for small pilot projects, this divergence may become significant when scaling up restoration strategies. Embedding cross-border considerations into Groningen's spatial planning instruments is therefore essential to ensure long-term policy coherence and to support the Ecological Sediment Management Strategy as a shared bilateral framework. Enablers include strong strategic alignment through the ED2050 programme and the availability of legally binding spatial instruments. Barriers include the challenge of translating pilot outcomes into regulatory language and potential coordination gaps between provincial planning and national regulatory mandates, especially in flood safety and conservation policy.