CrossGov

Coherent & Cross-compliant Ocean Governance for Delivering the EU Green Deal for European Seas

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Policy brief on challenges and opportunities to strengthen SPS interfaces

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ABSTRACT	The policy brief is based on the comprehensive assessment of Science-Policy-Society Interfaces (SPS) characteristics and functioning carried out in CrossGov as part of WP2 and WP3, whose findings are consolidated in the Blueprint for SPS (D4.3). The policy brief presents both the challenges in SPSIs emerged from the analysis and the recommendations

	to strengthen their efficiency and effectiveness across the policy cycle.
KEYWORDS	EU Green Deal; Science-Policy-Society Interfaces; Policy formulation and implementation; Evidence-based policymaking; Co-created recommendations.

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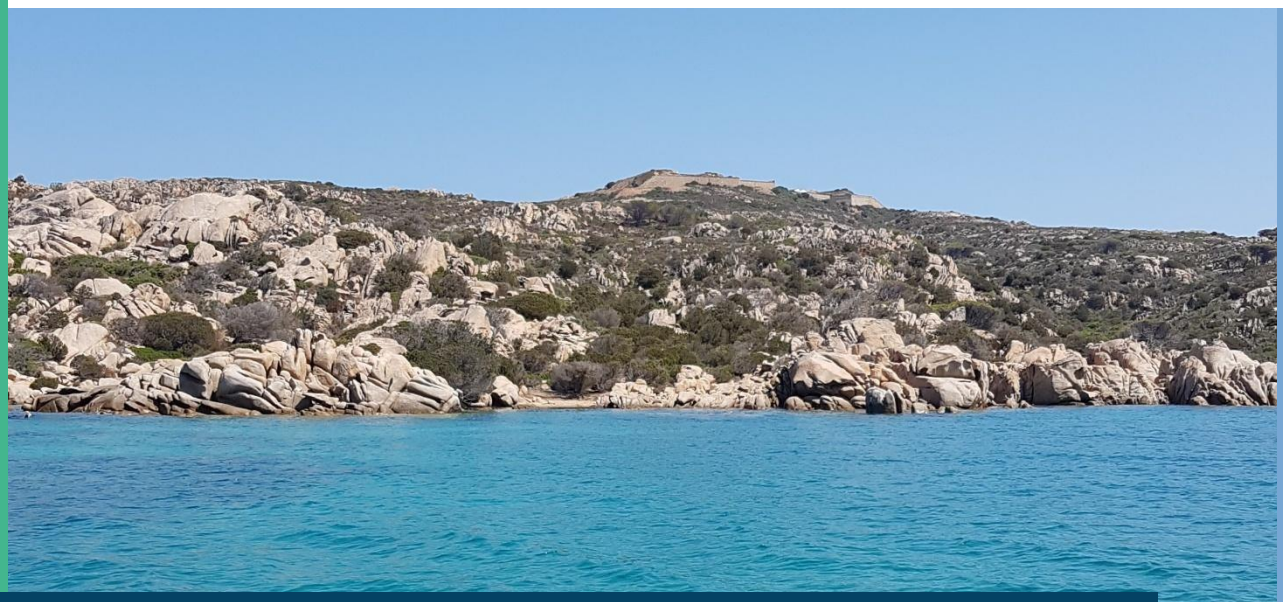

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Strengthening evidence-based policymaking in marine governance to achieve the European Green Deal goals

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The importance of evidence-based policymaking and decision-making in marine governance

Achieving the European Green Deal (EGD) goals—such as climate neutrality, biodiversity protection, and zero pollution—requires systemic coherence and cross-compliance across policies. This is particularly relevant for the marine domain, given the complexity of marine ecosystems and maritime uses, and their interactions with land-based and climate processes. Policy decisions must be informed by the best available scientific evidence and knowledge. Evidence-based policymaking is crucial to ensure sound and coherent policy design and implementation, as well as public trust, transparency, and effective responses to rapidly changing environmental conditions through an adaptive approach. Fragmented knowledge systems, uneven data accessibility, and sectoral silos are critical challenges, amplifying this need. As the EU further moves toward integrated ocean governance, as recently reaffirmed by the Ocean Pact, strengthening Science-Policy-Society Interfaces (SPSI) becomes essential for building resilient, inclusive, and adaptive marine policies.

The CrossGov project developed and applied a comprehensive methodology to understand and improve SPSIs in support of evidence-informed policymaking in the marine domain. The methodology was applied at two key policy cycle stages: (1) the policy design stage at the EU level, analysing clusters of EGD-related policies such as the Marine Strategy Framework Directive (MSFD), the Maritime Spatial Planning Directive (MSPD), and the Water Framework Directive (WFD); and (2) the policy implementation stage, through several case studies across the North Sea, the Baltic Sea and the Mediterranean Sea. The goal was to evaluate how SPSIs enhance policy coherence and cross-compliance, while identifying the mechanisms and barriers that affect their effectiveness. The project delivered a step-wise methodological framework and a Blueprint providing a self-assessment guidance tool and a set of co-created recommendations and best practices tailored to improve science-to-policy processes in marine governance.

What is SPSI and its main Building Blocks

Science-Policy-Society Interfaces are social processes that facilitate the co-construction and mutual exchange of knowledge between scientific, policy, and societal actors. Well-functioning SPSIs can support the development and implementation of robust, inclusive, adaptive and coherent policies.

Science-to-Policy Ecosystems, as represented in Figure 1 below, are composed of evidence providers (e.g. research funders, research organisations and academia), evidence users (e.g. policy-makers), intermediaries (e.g. boundary organisations) and hybrid actors (e.g. civil society and business operators). These Ecosystems enable the acquisition, translation, and application of scientific knowledge across the different phases of the policy cycle (i.e. design, implementation, and evaluation), potentially contributing to coherence and cross-compliance of policies.

CrossGov identified six foundational Building Blocks as main conceptual components to characterise the functioning of SPSIs (see Figure 1). These can be grouped and described as follows:

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The **outputs** of the system:

1. Data and knowledge: how data and knowledge are made available and used in the policy-making and decision-making process;

2. Assessments: how assessments assemble the best knowledge available in a form useful for decision making.

The **methods** of the system:

3. Knowledge transfer models and mechanisms: what are the models and mechanisms used to transfer knowledge, and what is their effectiveness;

4. Permanent SPSI Platforms: which permanent platforms are available (e.g. expert panels, communities of practice, SPSI networks, research outreach associations, co-developed web platforms) and their role in SPS and in implementing knowledge transfer mechanisms.

The **inputs** of the system:

5. Competence Frameworks: how competence frameworks (i.e. interdisciplinary knowledge, skills and attitudes of actors involved in the SPS Ecosystem) and related capacity building activities influence the SPS process;

6. Funding and Resources: how funding and availability of infrastructures and human resources affect the multiple dimensions of SPSI.

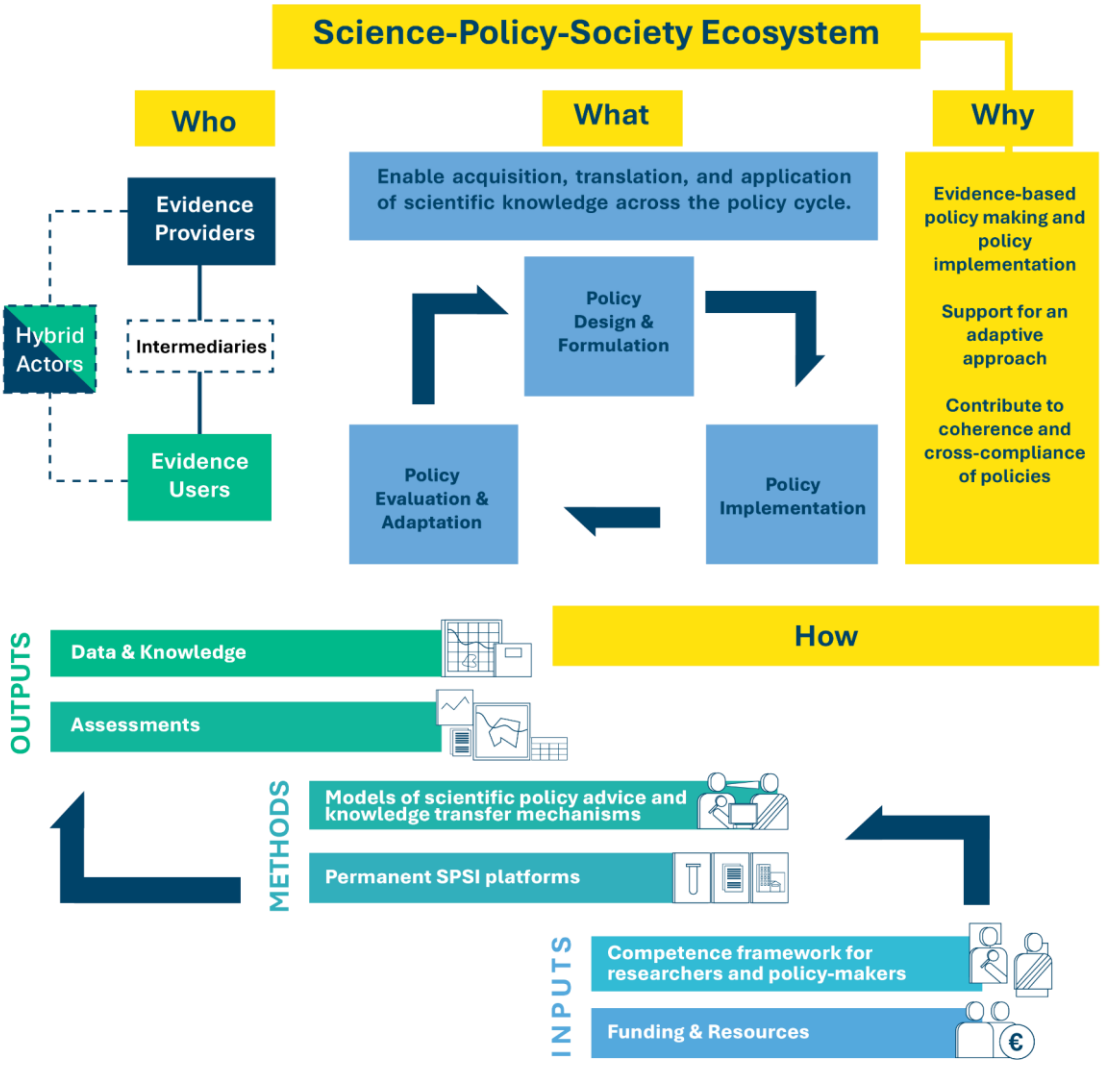

Figure 1. Key elements of SPS Ecosystem and Building Blocks.

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Challenges in SPSIs: What is not working

Despite increasing attention to the role of SPSIs in supporting evidence-based policymaking, several **persistent limitations** continue to affect their functioning. Challenges are interconnected, spanning all key components of the Science-to-Policy Ecosystem and influencing the coherence and cross-compliance of marine governance under the EGD.

A first critical challenge concerns the **fragmentation and limited accessibility of data and knowledge**. Knowledge relevant to marine governance is often dispersed across policy domains and governance levels, with inconsistencies in interoperability and uneven accessibility, particularly across the land-sea interface.

A second challenge relates to the sometimes **limited effectiveness and legitimacy of assessments**. Assessment processes are frequently developed in sectoral silos and struggle to systematically include diverse stakeholder perspectives, resulting in limited cross-sectoral policy integration.

A third area of concern involves the **underdevelopment of knowledge transfer mechanisms and models**. Knowledge brokerage and advisory functions are sometimes inadequately institutionalised, with limited continuity, insufficient support structures, and weak links to non-scientific knowledge systems such as socio-economic and local knowledge.

In parallel, **permanent SPSI platforms remain** sometimes **insufficiently developed and institutionalised**. Existing platforms are sometimes short-term, thematic, or project-based, with limited capacity to sustain cross-sectoral dialogue, foster integration across governance levels, and promote consistent knowledge flows throughout the policy cycle.

Competence frameworks and capacity-building systems show significant gaps, too. **Deficiencies in interdisciplinary and transdisciplinary skills**, as well as limited training in science-policy communication and systems thinking, undermine the ability of institutions to engage effectively in SPSI processes.

Finally, these structural weaknesses are sometimes amplified by **inadequate, fragmented, and short-term funding mechanisms**. Resources allocated to SPSI functions are frequently project-based, lacking stability and continuity, which prevents the development of sustainable Science-Policy cooperation.

Overall, these systemic limitations hinder the ability of SPSIs to deliver on their potential to improve policy coherence and integration within marine governance.

Recommendations to strengthen SPSIs efficiency and effectiveness across the policy cycle

To address these challenges, CrossGov collaborated with experts and stakeholders to co-develop a set of 14 recommendations relevant to EGD-related marine policies in general. These have been clustered in six groups and one cross-cutting group (Table 1). Science-Policy-Society Interfaces can play an essential role in improving the quality, legitimacy, and coherence of marine policymaking.

The recommendations developed through the CrossGov project are meant to be applied across the key stages of the policy cycle (i.e. **design, implementation,** and **evaluation**) to enhance evidence uptake and coordination between policy domains.

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At the **design stage**, early integration of scientific and societal knowledge can support the definition of clear objectives and well-informed policy priorities. Instruments such as interoperable knowledge catalogues, shared methodological guidance for assessments, and structured involvement of intermediaries or boundary organisations can ensure that policy options are grounded in the best available evidence and shaped through inclusive processes.

In **implementation**, the effectiveness of policies depends on institutional capacities, stable collaboration mechanisms, and sustained support for knowledge exchange. Actions such as the establishment of long-term, multi-actor platforms, investments in competence frameworks, and adequate funding schemes can help build the conditions for cross-sectoral cooperation and policy delivery that is responsive to both scientific input and stakeholder feedback.

At the **evaluation stage**, periodic assessments of SPSI performance, combined with mechanisms for monitoring knowledge flows and feedback, can support iterative learning and continuous policy improvement. These tools can help identify gaps, promote transparency, and foster the adaptive capacities needed to respond to changing environmental and socio-political conditions.

Taken together, these recommendations support the operationalisation of more inclusive, reflexive, and knowledge-informed governance processes, contributing to the coherence and effectiveness of marine policies at different scales.

Table 1. Recommendations relevant for EGD related marine policies.

SPSI RECCOMENDATIONS	
Data & knowledge	Support the development of **knowledge practices across policies**, e.g. knowledge catalogues for the sharing of data, across policies **at the national and EU level**.
Assessments	Enhance the preparation of a **guideline for assessments** to ensure their credibility, legitimacy and relevance, defining principles and features and recognising specificities.
Knowledge transfer models and mechanisms	Enhance the preparation of a **guideline for the analysis and improvement of SPS governance** (e.g. rules, procedures, actors and indicators), promote a **continuous analysis of the system** following this guideline to identify its strengths and weaknesses and support actions to **raise society awareness** on the added value and importance of SPS processes.
SPSI Platforms	Support **multi-actor SPSI Platforms** and promote **research boundary organisations**, recognising their key role in knowledge translation and cross-sectoral dialogue and collaboration.
Competence framework	Encourage significance of **engagement of researchers in science-for-policy activities** (e.g. recognising a more active role in the policymaking process) and develop specific **training and capacitybuilding activities** with a focus on inter- and transdisciplinary knowedge and skills.
Funding & resources	Ensure **institutional long-term funds** to SPS actors and **fund specific research projects** to improve SPS functioning (e.g. through Horizon Europe).
Cross-cutting	Enhance a **living practice of exchange of SPSI Best Practices and science-for-policy Ecosystems** (e.g. through the establishment of a dedicated repository) and improve and further use the **"Mission approach"** (e.g. Mission Ocean) already existing to provide more digested results and recommendations from R&I projects for evidence-based policymaking.

In addition to these overarching recommendations, CrossGov co-developed a series of **18 recommendations** focusing on some specific **policies** (i.e. Water Framework Directive, Marine Strategy Framework Directive, Maritime Spatial Planning Directive) and/or **sectors** (i.e. agriculture, fisheries and offshore wind energy). To read more about these, you can refer directly to the Blueprint.

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Linking to the ongoing policy discussion

Strengthening Science-Policy-Society Interfaces is not only instrumental for improving evidence uptake in marine policymaking. It is also essential for advancing more coherent, integrated, and responsive governance systems. In the context of the European Green Deal and ongoing policy developments, SPSIs offer a practical and structural means to connect and integrate diverse knowledge systems, facilitate cross-sectoral collaboration, and support adaptive management.

Recent initiatives at the EU and global levels reinforce this perspective. The **Ocean Pact**, adopted by the European Commission in June 2025, places knowledge and governance at the core of its approach to improving the health and sustainability of Europe's seas. It proposes the establishment of the **International Platform for Ocean Sustainability (IPOS)**—a mechanism designed to strengthen coordination and coherence across institutions and policy domains, and to support knowledge integration in ocean governance. The Pact also foresees the development of an overarching **Ocean Act**, a **high-level Ocean Board**, and an **EU Ocean Pact Dashboard** to monitor progress and guide implementation. These instruments provide a clear framework within which SPSI principles and tools can be embedded systematically.

Beyond the European context, the international scientific community has remarked similar needs and urgencies. The **One Ocean Science Congress (OOSC)** and its associated **policy brief and manifesto**, presented in the lead-up to the **United Nations Ocean Conference (UNOC3)** in Nice in June 2025, highlight the central role of knowledge in addressing ocean challenges. They advocate for the integration of scientific, indigenous, and local knowledge systems, for stronger investment in research and observation infrastructure, and for more effective SPSIs to guide decision-making at all levels.

In this evolving landscape, the **Blueprint and recommendations developed by CrossGov** provide practical entry points to address several of the systemic needs identified by both policymakers and researchers. This framework can support efforts to institutionalise SPSIs as part of a long-term transformation toward more legitimate, inclusive, and reflexive marine governance. In particular, it can assist institutions in assessing the performance of existing SPSIs, identifying capacity gaps, and improving horizontal and vertical coherence across policies.

Conclusion

Science-Policy-Society Interfaces play a critical role in fostering not only evidence-informed policymaking but also adaptive marine governance systems. By facilitating collaborative knowledge processes, SPSIs can enhance cross-policy coherence and promote more integrated responses to complex socio-ecological challenges. Their development and institutionalisation should be recognised as a strategic investment in resilience, inclusiveness, and adaptive capacity within marine governance under the European Green Deal and beyond.

While recent EU and international initiatives provide promising frameworks and instruments, the effective implementation of SPSI principles requires sustained political commitment, adequate resourcing, and long-term governance infrastructures. Connecting and reinforcing existing mechanisms offers a tangible path forward for embedding knowledge-based, reflexive, and participatory governance models in European marine policy systems.

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Glossary

Policy coherence refers to how well different policies work together. Coherence can be defined as the extent to which policies reinforce each other by promoting synergies or reducing conflicts between their objectives and measures both in design and implementation.

Cross-compliance refers to the concurrent achievement/realisation of multiple Green Deal policies and their associated goals and targets.

Policy refers to a set of objectives, rules and measures that provide guidance for solving a particular societal issue. In CrossGov, policy encompasses substantive documents such as white papers and strategies as well as specific laws and regulations or directives.

A ***policy cycle*** consists of a series of policy phases that are carried out in series and with internal recursive processes in order to manage all aspects of a policy. Its main phases can be synthesised as: (i) policy design and formulation, that involves identifying problems, setting objectives, and developing possible policy solutions; (ii) policy implementation, where the selected policy is put into action through concrete measures, plans, and dedicated resources; (iii) policy evaluation and adaptation, which assesses the policy's outcomes and effectiveness, informing adjustments or redesign as needed.

Science-policy-society interfaces (SPSI) are defined as social processes which encompass relations between scientists and other actors in the policy process and which allow for exchanges, co-evolution, and joint construction of knowledge with the aim of enriching decision-making (Van Den Hove, 2007).

A ***Science-to-Policy Ecosystem*** is defined as the set of actors, including the civil society, and connections through which scientific knowledge is acquired, synthesised, translated, presented for use, and applied in the policymaking process (adapted from Oliver, 2022).

Boundary organizations are formal institutions that operate at the interface between science and policy, facilitating collaboration and knowledge exchange. They aim to bridge the gap between researchers and decision-makers, enhancing the impact of scientific research on environmental policy and practice (Cvitanovic et al., 2018, Gluckman et al., 2021, Oliver et al., 2021, Wagner et al., 2022).

The ***Building Blocks*** are the main conceptual elements identified as central for the assessment of the functioning of SPSIs in the framework analysis developed and applied in the project (CrossGov D1.4 - Barbanti et al., 2023): data and knowledge, assessments, models of scientific policy advice and knowledge transfer mechanisms, permanent SPSI platforms, competence framework for researchers and policy-makers, funding and resources.

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The policy brief is based on the comprehensive assessment of SPSIs characteristics and functioning carried out in the CrossGov project. Overall, CrossGov aims to enhance knowledge on how coherence and cross-compliance of marine-related policies and legislation affect the ability to realise the EU Green Deal's goals for the protection of marine ecosystems and biodiversity, zero pollution and nature-based climate adaptation and mitigation.

This analysis addressed both EU-level policy design and case study-level policy implementation. The findings are consolidated in the document titled "A co-created Blueprint to strengthen SPS interfaces in the marine domain", on which this policy brief is based on and which was co-developed with EU and international experts. The Blueprint serves both as a guide to improve science-to-policy processes for evidence-based policymaking and as a self-assessment tool. It offers a conceptual structure focused on diagnosing and characterising the Science-to-Policy Ecosystem, based on key Building Blocks. Drawing from the CrossGov analysis, it also proposes a set of recommendations illustrated with practical examples and lessons learned from the project.

Reference:
Ginevra Capurso, Emiliano Ramieri, Froukje Maria Platjouw, Laura Friedrich and Andrea Barbanti. Strengthening evidence-based policymaking in marine governance to achieve the European Green Deal goals, CrossGov Policy Brief number 5, August 2025.

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