



VALUABLE PRACTICE: Zoning sources and sinks of sands in MSP: a need for climate change adaptation

Description

Short description Based on the existing spatial uses and activities at the sea and along the coast, the MSP Italian draft plans identify planning units (zoning) and prioritize specific uses or sectors to minimize potential conflicts at the interaction between land and sea, foster coexistence of practices, and guarantee marine resources management through adaptive developments. Extended, but limited, portions of the Adriatic and Tyrrhenian Seas (in the continental shelf) are characterized by underwater sand deposits. Those sand deposits are relevant non-renewable resources that allow the coast to respond dynamically to changes and external pressures such as coastal erosion and sea level rise turning them into beach nourishment and potential climate change adaptation actions such as dunes systems (Nature-Based solution). The MSP draft plans recognize these areas as planning units (PUs) and prioritize them “sand deposits” (over other activities), as an approach to protect the resource from anthropic impact and define, at national level, strategic measures to enhance their value, improve their management from the dredging activity, and promote climate adaptation actions.

Practice typology

(i) Measure + (iv) zoning

Topics addressed

Main	B. Climate change adaptation [B.1. Green Infrastructures to enhance coastal-resilience (B.1.1 Green Infrastructures: Creation and maintenance of Nature-based solutions (wetlands, salt marshes, seagrass meadows, maërl beds, mangroves, dunes, etc.) and B.2.1 Identification of spatial and non-spatial measures with the aim of addressing the impacts from climate change)].
Secondary	A. Climate change mitigation D. Biodiversity and ecosystem protection and restoration.

Sectors/Activity involved

Marine aggregates (sand extraction for beach nourishment or dune construction); Coastal protection; Coastal and maritime tourism; Maritime transport; Fishing; Nature protection and restoration; Landscape protection.

Stakeholders involved

The planning units designated "sand deposits" priority were co-planned from the beginning of the process between ministerial and regional entities with the support of a scientific team. Specifically, the planning units established in the offshore areas (beyond the 12MN), were designed at ministry level, while those within the 12 MN in the sub-area facing the Lazio region coast directly by the region itself. In this specific case, coastal municipalities were also involved. Defined PUs were deliberated by the regional council. Subsequently, both PUs offshore and within the 12 NM were approved by the Technical Committee and submitted to the public consultation of both the SEA process and the plan, were NGOs, general public, and associations could express their observation.

Geographical scope

All three MSP Italian draft plans (Adriatic, Ionian-Central Mediterranean, and Tyrrhenian-Western Mediterranean) adopted the approach. Three planning units prioritized “sand deposit” are included in the Adriatic offshore waters (sub-area A/7) and two in the Tyrrhenian territorial waters (sub-area MO/3). Five sand deposit national measures to coastal defense (and implicitly to climate adaptation) are identified within the three MSP Italian plans.

Governance context

The current regulatory framework in Italy, specific to dredging activities of relict sands for beach nourishment purposes, is still partially in progress. The Ministry of Environment (MASE), together with the Ministry of Infrastructure (MSP Competent Authority), the Superior Institute for Environmental Protection and Research (ISPRA), the Regional environmental protection agency (ARPA) and the Region in which the activity take place are involved in the process, with specific competences, for the authorization, implementation and monitoring.

How this MSP practice can support the EU Green Deal

Establishing planning units prioritized "Sand deposit" promotes, at the national strategic level, better management of the non-renewable resource also with respect to potential spatial conflicts with other maritime activities (transportation, fishing, landscape protection, nature protection and restoration, etc.). This practice directly supports EGD challenge adaptation “(B) Green Infrastructures to enhance coastal-resilience; (B.1) Green Infrastructures: Creation and maintenance of Nature-based solutions (wetlands, salt marshes, seagrass meadows, maërl beds, mangroves, dunes, etc.); (B.1.1) Identification of spatial and non-spatial measures with the aim of addressing the impacts from climate change; (B.2.1) by improving the management of the resource”. For this purpose, the MSP draft plans intend, through the measure’s implementation on coastal defence, to reduce vulnerability of coastal ecosystems and limit conflicts and impacts associated by prioritizing the use of sand deposits. Moreover, based on the existing regulatory framework, the MSP plans identify two measures:

- i. Repurpose the terms of reference of the National Coastal Erosion Table (TNEC) between MASE and Regions to address, in a coordinated way, the Integrated Coastal Zone Management (ICZM) at the national scale and by systemizing existing coastal strategies and plans. This table should firstly build capacities and facilitate behavioural change to better cope with climate-related challenges, secondly it will increase knowledge and raise awareness on the effects of a changing climate in relation to sand deposits, marine ecosystems and maritime activities. Finally, it leads towards the promotion of measures and actions to research and test climate change adaptation interventions (also in synergy with mitigation goals) conceptually, environmentally, and technologically evolved (e.g., nature-based solutions) implemented at the appropriate spatial scales, and finally conduct a census and monitor these interventions at the national and regional scales.
- ii. Create a working group to improve regulations and authorization procedures related to coastal nourishment concessions and interventions with underwater sands to clarify and speed up the authorization processes in accordance with the principles of transparency and efficiency.

The management improvement of the sand deposit resource, in terms of governance, cooperation and promotion of specific adaptation action, implicitly supports the EGD’s “A. Climate change mitigation and D. Biodiversity and ecosystem protection and restoration target on emission reduction and climate neutrality”.

Moreover, the MSP draft plans, promote research activity to be detected by mapping new potential areas of sand deposits in order to constantly identify the resources and activate specific management to valorise and protect them.



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Challenges/gaps/inconsistencies still to be addressed

The challenges of this practice can be listed as follows:

- ✓ MSP plans are strategic national tools thus not legally binding and still under finalization (not approved yet), while adaptation actions need immediate strategies at a more local scale.
- ✓ The phenomenon of coastal erosion in Italy affects extended areas and therefore involves ministries, regional authorities, and coastal municipalities, the scale at which adaptation measures should be implemented for their effectiveness. Related to this, a key enabling factor is the availability of economic and financial resources, relevant at regional and local scales for its implementation.
- ✓ The need of a specific and constant monitoring and mapping program of the relict sands in order to prevent potential conflict and preserve the non-renewable resource.
- ✓ Beach nourishment is a temporal adaptation action used to prevent shoreline retreat or beach erosion and requires frequent interventions if compared to the limited availability of the resource.
- ✓ Working with sand extractions can have significant impacts on the existing marine ecosystem. Sand extractions (either for creating dunes or beaches) although can work as a good strategy against climate change will also put coastal and seabed ecosystems at risk, including marine biodiversity affected by water turbidity and changes in nutrient availability and (underwater) noise pollution. In addition, coastal or near-shore extractions can also affect salinization of aquifers and future tourism development.
- ✓ MSP plans consider, through planning units and measures, the need for improved management, but being a non-renewable resource, it is closely linked to the continuous updating of geognostic control data and monitoring of interventions, and its updating must be planned as part of regional strategies for exploiting the submerged sand resource.
- ✓ On the areas identified as a "Sand deposit" priority, no dedicated meetings were held with fishermen and transportation-related stakeholders which would have enabled participatory awareness.
- ✓ There are some uncertainties related to the measure implementations by the regions in achieving a shared and long-term strategy and to the economic-financial availability that would allow adaptation actions to be effective on the Italian coast and counteract climate impacts.

Replicability /Elements which can be capitalised

The scientific-technical approach with which the planning units prioritized "sand deposits" was identified and designed and the process of defining the measures can be an element of replicability:

- ✓ Considered an ecosystem-based approach and is based on the scientific availability of data jointly offered by ministries, research institutions, and regions.
- ✓ In the case of the Lazio Region, the two PUs of "sand deposits" were vocated with dual priority, one with maritime transport and the other with fishing to emphasize the potential conflict and define appropriate mitigation measures between the two activities.
- ✓ Within the PUs there are no protected areas, areas of high environmental value importance, and none fall in deep habitat areas.
- ✓ National measures have been defined with constant cooperation between administrative bodies (ministries, regions) and specific meetings have been dedicated for gathering observations and eventual additions.

- ✓ The practice considers the issue of sand deposits not only from the spatial dimension but in support of strengthening the governance and roles to facilitate adaptation interventions.