

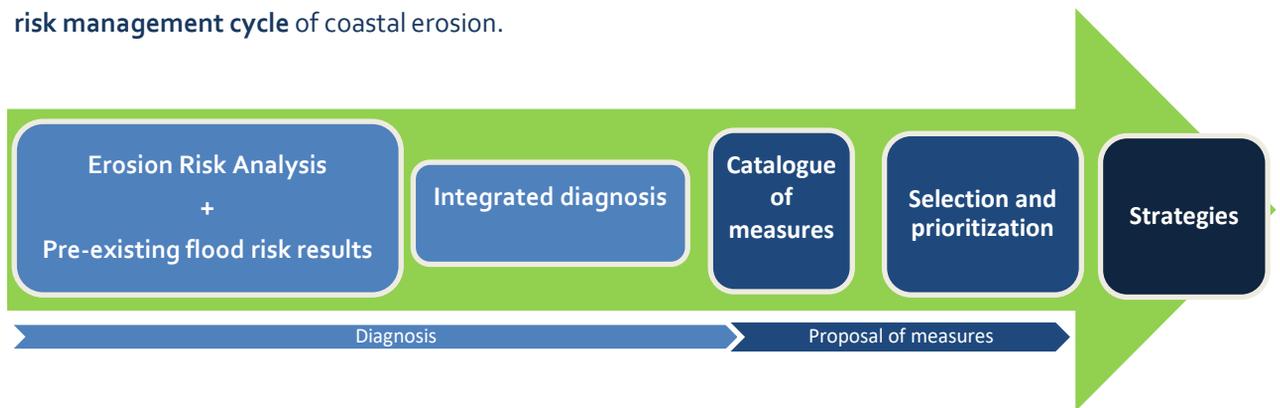
STRATEGIES FOR COASTAL PROTECTION IN THE PROVINCES OF CÁDIZ, MÁLAGA AND ALMERÍA CONSIDERING THE EFFECTS OF CLIMATE CHANGE

Catalogue of Measures

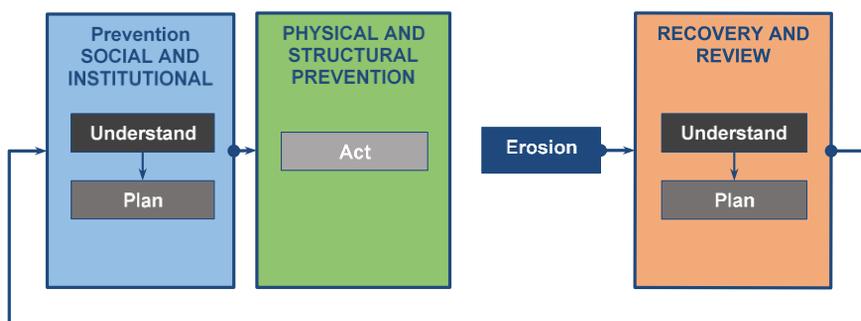
The development of the Strategies for Coastal Protection considering the effects of climate change in the provinces of Cádiz, Málaga and Almería is an initiative funded by the European Union's Structural Reform Support Programme at the request of the Directorate General for the Coast and the Sea (DGCM) of the Ministry for Ecological Transition and the Demographic Challenge.

The objective of the Strategies is to guide decision-making on the actions carried out by the DGCM in the provinces of Cádiz, Málaga and Almería within the framework of its competencies for coastal erosion risk management, seeking synergies with flood risk management and incorporating the adaptation to climate change.

After the **diagnosis phase** had been completed, the first step of the **phase of proposing measures** for the protection of the coast was undertaken. This consisted in drafting the **Catalogue of measures**, which include all possible measures to be considered in the Strategies, including institutional, social, physical and structural prevention measures, as well as, recovery and review measures, according to the proposed **risk management cycle** of coastal erosion.



The measures in the Catalogue are framed within the triple objective of “understanding”, “planning” and “acting”. The measures aimed at understanding seek to improve the understanding of the characteristics and functioning of the coastal system as a whole. Those aimed at planning seek to rationalize interventions on the coastal system to align them with the functions and permitted uses of the coast. Those aimed at acting have the purpose of physically transforming the coastal environment through soft engineering actions or ones based on natural processes and, as a last resort, structural measures.



In the **Catalogue of measures**, the following information is included for each category of measures:

- **Description:** stating the general objective of the category, the measures included and the specific objectives that are pursued with their implementation, together with their geographic scope of application.
- **SWOT:** analysis of the strengths, weaknesses, opportunities and threats associated with the corresponding category of measures, including the level of acceptance and the lessons learned from work carried out during the diagnosis phase.
- **General costs:** general comments on the costs of implementation/maintenance of the measures of each category.
- **Indicators for control and monitoring:** indicating the measurable variables that allow the implementation and effectiveness of the measure to be properly controlled and monitored.

A series of tables below shows the 22 measures proposed under the three different categories, their scale of application and their objective.

1) Social and institutional prevention measures

Category	Measure	Nº	Geographical scope	Objective
Improving information availability	Sedimentary resource availability studies	1	Regional / Local	
	Maps and studies of hazards, vulnerability, and coastal risks	2	Regional / Local	
	Systematic monitoring of the coast	3	Regional / Local	
Building capacity and knowledge base	Training, capacity building (skills) and research activities	4	Regional	
Improving public awareness	Participation and communication campaigns about coastal dynamics, risks and management	5	Regional / Local	
	Environmental education campaigns	6	Regional / Local	
Maritime-Terrestrial Public Domain (DPMT) management	DPMT demarcation review	7	Regional / Local	
	Identifying DPMT occupations	8	Regional / Local	
	Review the concessions for the occupation of DPMT	9	Regional / Local	
Improving governance performance	Coordination between administrations	10	Regional / Local	
	Review of administrative procedures	11	Regional	

2) Physical and structural prevention measures

Category	Measure	Nº	Geographical scope	Objective
Nature-based measures	Coastal sediment management	12	Local	Act 
	Dry beach width maintenance and beach nourishment operations	13	Local	
	Environmental maintenance and rehabilitation of the beach dune system	14	Local	
	Environmental maintenance and rehabilitation of salt marshes	15	Local	
Coastal stabilization	Construction and maintenance of structures for the stabilization of the coast	16	Local	
Coastal defences	Construction and maintenance of structures and other actions for the defence of the coast	18	Local	
Managed retreat	Relocation and withdrawal of DPMT occupations	19	Local	
	Withdrawal of defence structures from the coast	20	Local	

3) Recovery and review measures

Category	Measure	Nº	Geographical scope	Objective
Evaluation, analysis and diagnosis	Ex-post analysis of erosion and flood events and lessons learned from coastal management	21	Local	Understand 
Improvement of coastal reconstruction	Planning coastal front rehabilitation	22	Local	Plan 

The next step in preparing the Strategies is to develop a methodology for determining the measures in the Catalogue that are the most appropriate for each management unit into which the coastal strip has been divided, prioritizing some measures over others. Finally, regional measures are also proposed.

For more information: <https://www.miteco.gob.es/es/costas/temas/proteccion-costa/estrategias-proteccion-costa/>
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