

Science for Environment Policy

Local participation in marine planning can help achieve conservation outcomes without compromising fisheries

The importance of seagrass meadows in supporting fisheries has been highlighted by a new study in San Simón Bay, a Natura 2000 site in Spain. The research also demonstrates the benefits of stakeholder involvement in developing management plans to balance conservation with the use of natural resources.

Seagrass meadows — groups of flowering plants found in the sea — represent a coastal habitat with an important ecological and economic role in Europe. They help to maintain coastal [biodiversity](#), protect against coastal erosion, they have a role in climate change mitigation and support coastal fisheries by providing important refuges and breeding habitats. The EU [Habitats Directive](#) requires designation and adequate management of Natura 2000 areas for the protection of certain seagrass habitats, while the [Water Framework Directive](#) (WFD) recognises seagrasses as an element to be included in the assessment of the ecological quality of transitional waters. The location of seagrass meadows in intertidal zones of enclosed bays or estuaries (the area that is exposed to the air at low tide and submerged at high tide), which have higher levels of human activity, makes them vulnerable to pressures such as those from fishing and aquaculture, but also from boating and recreational activities. In this study, researchers investigated how human activities and management responses influence seagrass habitats in San Simón Bay in Galicia, north-west Spain, part of the [Natura 2000](#) network of protected areas.

The study aimed to gather local knowledge on the use and management of seagrass. To do this, researchers first performed a biological survey (an inventory of the seagrass habitat cover using visual estimates and photographs) of two seagrass species prolific in the area, common eelgrass (*Zostera marina*) and dwarf eelgrass (*Zostera noltii*), across the bay.

These surveys were combined with participatory mapping, which comprised interviews and mapping exercises with 33 stakeholders with ecological knowledge of the local area and/or extensive experience working in the area, including fishers, officials involved in bay management and recreational users of the bay, in order to visualise the way local use affected the seagrass habitats. In addition, public planning documents, regulations on seagrass management and scientific literature were consulted to better understand how seagrasses are considered in policy.

The information gathered was combined to map the distribution of seagrass meadows within the bay and the interactions of seagrass habitat with human activities. Three types of interaction were identified: direct exposure of the seagrasses to damage from marine activities; marine activities that are supported by seagrasses; and marine activities that are disturbed by the presence of seagrasses. Mapping seagrasses against human activity in the bay shows how the relationship between the two depends on their location and distribution, and can help to achieve conservation goals and sustainable management of resources.

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Local fishers identified the maintenance of fisheries as the best known benefit of seagrasses, particularly for cuttlefish (*Sepia*) and eel (*Anguilliformes*) fisheries. For other commercial or recreationally important fishes, such as sardine (*Clupeidae*), sea bass (*Dicentrarchus labrax*) or gilt-head bream (*Sparus aurata*), the presence of seagrass meadows was considered beneficial but not essential for the long-term sustainability of fishing activities. The main threat to seagrass meadows in the bay is shellfish fisheries, as they share the same optimal conditions and therefore compete for space.

In terms of policy, the researchers found that management plans for using marine resources (including policies at local, regional and national levels) conflict with plans to protect the environment and the seagrass meadows. For example, previous public policies have supported the conversion of meadows into sandbanks to support cultured shellfish. The researchers argue that such contradictions can lead to difficulties in implementing key European policies such as the Habitats Directive and the WFD. In addition, the researchers say that current management policies have not developed the necessary indicators for seagrasses, making it difficult to include them in decision-making processes.

The study demonstrates that participatory mapping can be useful for understanding how people use habitats and provides opportunities for locals to participate. Local knowledge about the role of seagrass meadows in supporting commercial fisheries, as well as the reasons for negative perceptions of shellfish fisheries, was gained from the participatory mapping exercises used in this study. Such consultation, the researchers conclude, is crucial for developing realistic strategies to manage seagrasses (and potentially other important habitats) and human activity in a cooperative manner.

