

Marine Spatial Planning

RELEVANCE TO MARINE RENEWABLE ENERGY

Marine spatial planning (MSP) is an approach to managing marine activities with competing industries to balance environmental, social, and economic interests. All MSP processes try to reflect key principles that are science-



or evidence-based, integrated, adaptive, strategic, and participatory. These principles can present challenges for implementation because in general each activity is managed individually, with limited consideration of other economic activities occurring in the same space or their potential effects on the receiving environment individually or cumulatively. Failure to take a more holistic approach to planning can result in conflicts between different marine users and potential effects on the marine environment.



STATUS OF KNOWLEDGE

MSP varies by country and sometimes within countries. Currently, MSP is being used by many Ocean Energy Systems (OES)-Environmental countries to plan and develop marine renewable energy (MRE) sites. Several countries, including Australia, France, Portugal, South Africa, Sweden, and the United Kingdom (as well as at the level of England, Northern Ireland, Scotland, and Wales), have formal MSP plans. Although the United States has no existing federal MSP plans, it relies on MSP principles and has some state-regulated processes. Other OES-Environmental nations, including Denmark, India, Ireland, and Spain, have not yet mandated MSP.



REMAINING UNCERTAINTIES

Many national and regional energy policies acknowledge the potentially transformative role marine renewable energy (MRE) could have in their energy futures, but MRE is still under development in all the OES-Environmental countries. Currently, MRE is primarily incorporated into marine spatial plans through stakeholder engagement mechanisms and dedicated meetings with sectoral representatives or their organizations. The generation and accessibility of marine resource and mapping data continue to be a challenge, although these needs have driven the development of various web portals, some of which have become tools to assist in implementing MSP. In addition, few countries have allocated zones for MRE development; this could be a result of the difficulties involved in spatially zoning marine areas and the need to avoid conflict with existing users.

RECOMMENDATIONS

Planners and policymakers should be up to date on MRE deployments and their interactions with the marine environment. As the MRE industry moves toward commercialization and development of arrays and smaller deployments that may serve remote or off-grid communities, MSP plans should address inherent differences in scale among MRE project sites, marine resources, and countries.

As more and more countries recognize the potential for MRE to meet renewable energy targets and reduce greenhouse gases, demands on maritime space are likely to increase. To minimize impacts and maximize sustainable development opportunities, it is critical to have a forward-planning process such as MSP in place, supported by an efficient and effective development consenting/licensing system and enforcement regime.

REPORT AND MORE INFORMATION

OES-Environmental 2020 State of the Science full report and executive summary available at:
<https://tethys.pnnl.gov/publications/state-of-the-science-2020>

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Go to <https://tethys.pnnl.gov> for a robust collection of papers, reports, archived presentations, and other media about environmental effects of MRE development.