

# Enhancing the Understanding of Environmental Effects of Marine Renewable Energy



**Tethys** is a publicly accessible online knowledge base that facilitates the exchange and dissemination of information on environmental effects of wind and marine renewable energy (MRE).

Tethys was developed and is maintained by Pacific Northwest National Laboratory, on behalf of the U.S. Department of Energy's Water Power Technologies Office.

Tethys supports the MRE community by facilitating the knowledge sharing needed to advance MRE development in an environmentally responsible manner. Tethys has been developed to provide researchers, regulators, advisors, project developers, and other stakeholders with information and research findings that can support siting, consenting (or permitting) processes, management decisions, and operational strategies while minimizing risk to the environment.

Tethys hosts scientific papers, reports, and other media; creates a collaborative space for the MRE community; and provides a central location for archived webinars and other material, an events calendar, contacts for individuals and organizations, and links to related databases.

## TETHYS KNOWLEDGE BASE AND MAP VIEWER

Tethys hosts over 4,300 documents pertinent to the environmental effects of MRE. There are several pathways by which users can find content to suit their needs.

Documents available in the [Tethys Knowledge Base](#) can be easily filtered by content type (e.g., journal article, conference paper), technology type (wave, tidal), or specific environmental interaction (such as collision). Documents that are geotagged can also be found by location on the [Tethys Map Viewer](#).

## TETHYS BLASTS

[Tethys Blasts](#) are biweekly newsletters that highlight new documents on Tethys; relevant announcements, opportunities, and upcoming events; and news articles of international interest. Visit <https://tethys.pnnl.gov/tethys-blasts/join> to join the mailing list.

## TETHYS STORIES

[Tethys Stories](#) feature information on news, events, research, and projects relevant to wind and MRE development activities across the globe. Stories are contributed from individuals working in the field, and provide insight into advancing the energy industry in an environmentally responsible manner.



## OES-ENVIRONMENTAL

OES-Environmental is an initiative of 16 countries established in 2010 under the International Energy Agency's Ocean Energy Systems collaboration to examine the environmental effects of MRE development around the world. Tethys acts as the coordination, collaboration, and outreach platform for OES-Environmental, which works closely with researchers, regulators, advisors, developers, and other stakeholders to help progress the industry and expedite environmental consenting processes.

## OES-ENVIRONMENTAL 2024 STATE OF THE SCIENCE

The *OES-Environmental 2024 State of the Science Report: Environmental Effects of Marine Renewable Energy Development Around the World* compliments and serves as an update to the *2020 State of the Science Report*. The 300-page report was developed by over 35 authors and contributors and is the most comprehensive analysis to date on the environmental interactions of MRE devices and associated infrastructure with marine animals, habitats, and ecosystem processes. The report also delves into technologies for monitoring interactions with marine animals, addresses a series of management and planning measures that may assist with responsible MRE development, and concludes with a potential path forward. Fourteen short science summaries were produced that present information from the report, and the executive summary is available in eight languages (English, Chinese, French, Japanese, Norwegian, Portuguese, Spanish, Swedish).



Visit <http://tethys.pnnl.gov> for a robust collection of papers, reports, archived presentations, and other MRE development.

## OES-ENVIRONMENTAL WEBINARS

OES-Environmental hosts webinars to disseminate new research findings and collaborative efforts to understand environmental effects of MRE for an international audience. Visit <https://tethys.pnnl.gov/environmental-webinars> to view archived webinars.

## OES-ENVIRONMENTAL METADATA

OES-Environmental metadata forms provide information from researchers and developers about projects (or test sites) and research studies capturing many of the activities around the world that are exploring the environmental effects of MRE. Each metadata project or research study includes a brief summary, detailed information about project or research progress, available publications or reports, results of research or monitoring, and a point of contact.

## ADDITIONAL RESOURCES

OES-Environmental has developed several resources and tools:

- The risk retirement pathway guides risk retirement for MRE development
- The series of guidance documents helps to make scientific information accessible and is tailored for a wide audience.
- The [monitoring datasets discoverability matrix](#) is an interactive tool that classifies monitoring datasets from already consented MRE projects and research studies (captured via OES-Environmental metadata) for six key environmental interactions.
- Tethys hosts an MRE [educational resources page](#) to increase awareness and understanding of MRE and associated effects as well as support the future workforce.

Contact

Tethys  
Pacific Northwest National Laboratory  
[tethys@pnnl.gov](mailto:tethys@pnnl.gov)

