

# TETHYS BLAST

25 April 2025

[Tethys](#) is a knowledge hub with information and resources on the environmental effects of wind and marine energy. The bi-weekly [Tethys Blast](#) highlights announcements and upcoming events; new documents in the [Knowledge Base](#); and international energy news. [ORJIP Ocean Energy](#) has partnered with [OES-Environmental](#) to provide additional content. [Email us](#) to contribute!

[Announcements](#)  
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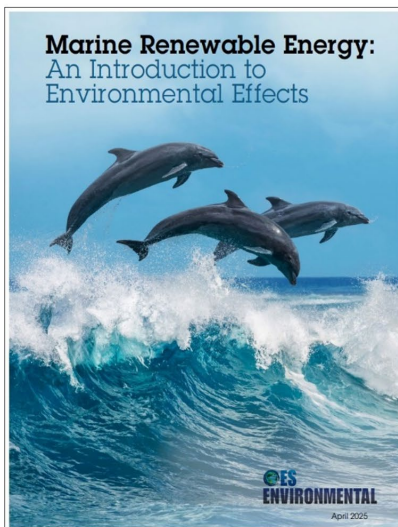
[Marine Energy Documents](#)  
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## Announcements

### Updated Marine Renewable Energy Brochure


OES-Environmental has published an updated [Marine Renewable Energy Brochure](#) that provides an overview of the environmental effects of marine renewable energy (MRE) development. The goal of the brochure is to familiarize readers with the latest scientific information on the potential effects of installation and operation of MRE devices.



### Collision Risk


**Description**

The presence of MRE devices, in particular the rotating blades of tidal, ocean current, and riverine turbines, is thought to pose a risk to marine animals. Animals could come into close contact with turbine blades in the course of their natural movement because they are entrained by the device or because they are not strong enough to avoid currents that might sweep them into the blades. The concern is that a collision with moving device parts (e.g., turbine blades) or a moving device (e.g., tidal kite) could cause permanent injury or death. Additional interactions of interest include being close proximity to a device (encouraged, moving away from a device (avoidance), and coming close to a device before already moving away (evasion). For animal populations that are already under stress for other reasons, such as historical overfishing, climate change, or other human activities, the loss of a few individuals due to collision might affect the survival of the population. The greatest concerns are for marine mammals, fish, seabirds, and sea turtles, including endangered species and commercially, culturally, and recreationally important species.




**Level of knowledge/uncertainty**

The current perceived risk of marine animals colliding with a tidal, riverine, or current device is considered to be relatively high because it is uncertain whether collisions will occur, and the consequences of a collision could be severe. However, the current data suggest that the probability of collision is low. There have been no observations of marine mammals, seabirds or sea turtles colliding with turbine blades, and no evidence that fish collisions with operational turbines lead to injury or mortality. Furthermore, the sensory capabilities of these animals suggest that collisions with turbine blades will be rare. However, much remains unknown. Observing animals in the vicinity of turbines is challenging, and few technologies are designed for this purpose. Waters where tidal, ocean current or riverine turbines are deployed are fast-moving and often murky, and the probability of observing a collision event under these conditions is low.




### Guidance and recommendations

To better understand collision risk, we need additional information about animal presence and avoidance behavior around turbines, and on consequences of collisions (e.g., injury, mortality). We also need improved methods for monitoring around devices in high-energy conditions to better observe close interactions. These data can be used to develop, improve, and validate the accuracy of numerical models of collision risk to understand effects on individuals and populations of interest. Decreasing the uncertainty about collision risk will be particularly needed as the industry moves to arrays of devices. This is a topic of current research in the MRE community and subject matter experts and industry developers are working together to share knowledge and information as they become available to broadly advance understanding of this potential risk.




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The data summarize the broadly understood level of risk from collision for marine animals and turbines for small numbers of MRE devices.

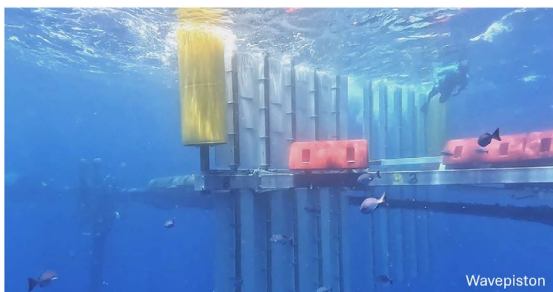
### MRE case study: Collision risk monitoring at MeyGen

The MeyGen project team developed a monitoring plan to understand collision risk at their tidal energy project in the Pentlands Firth, Scotland. The plan included two primary objectives: estimate avoidance and collision rates for harbor seals to verify and improve the accuracy of collision/encounter rate models, and provide sufficient monitoring data to allow each subsequent stage of the development to proceed. The monitoring plan included detecting avoidance behaviors and potential collisions of marine species, focusing on harbor seals using video cameras, passive and active acoustic monitoring, and tagging. Although harbor seals were the primary concern, the technologies developed were capable of monitoring other marine animals. The initial results (2019) showed no collisions or other detectable impacts caused by the presence of the tidal turbines. The study also found that harbor seals used the area less when the turbines were operational, suggesting that they were aware of and avoiding the turbines, or that they do not choose to swim when the tidal currents are strongest. A later study (2021) showed that harbor porpoises also avoided the operational turbine.



## Tethys Engineering Photo Library

Tethys Engineering hosts a Marine Energy Photo Library that features over 850 high-resolution photos and illustrations of marine energy devices, test sites, and monitoring technologies from 70 developers around the world. These images are free for third party use – [email us](#) to contribute!



## Request for Information

Pacific Northwest National Laboratory (PNNL) is [requesting information](#) from developers, owners, and/or manufacturers of small-scale current energy devices capable of deployment and operation to power coastal aquaculture operations. Responses are due 6 June 2025.

## 2025 UMERC + OREC Travel Support

The Pacific Ocean Energy Trust (POET) is offering [Registration and Travel Support](#) for the [2025 University Marine Energy Research Community \(UMERC\) Conference](#) and [Ocean Renewable Energy Conference \(OREC\)](#), which will both take place on 12-14 August 2025 at Oregon State University in Corvallis, Oregon, USA. Applications are due by 15 May 2025. Early bird and student registration rates are also available.

## Calls for Abstracts

The Call for Abstracts for the [Structures in the Marine Environment \(SIME\) 2025 Conference](#) is open until 28 April 2025. SIME will take place 23-24 June 2024 in Edinburgh, Scotland.

The [Call for Abstracts](#) for the [Marine Renewables Canada 2025 Conference & Exhibition](#) is open until 16 May 2025. The event will take place 12-14 November 2025 in Halifax, Nova Scotia, Canada.

The [Call for Abstracts](#) for the 2025 North American Wind Energy Academy (NAWEA) / WindTech Conference is open through 17 May 2025. [NAWEA/WindTech 2025](#) will take place 14-17 October 2025 in Dallas, Texas, USA.

The Call for Proposals for sessions and town halls at the [2026 Ocean Sciences Meeting \(OSM\)](#) is open until 28 May 2025. OSM will take place on 22-27 February 2026 in Glasgow, Scotland.

### Funding & Testing Opportunities

Research Infrastructure Services for Renewable Energy (RISEnergy) has opened its second [Transnational Access Call](#), inviting researchers from academia and industry from all European Union member states or Horizon Europe-associated countries to propose innovative solutions to improve energy systems or cut the life cycle costs of renewable energy technologies. Applications are due 4 May 2025.

The Testing Expertise and Access for Marine Energy Research (TEAMER) program, sponsored by the U.S. Department of Energy and directed by POET, is accepting [Request for Technical Support \(RFTS\) 16](#) applications through 6 June 2025 to support marine energy testing and development projects. Open Water Support applications can be submitted any time. TEAMER also offers [Results Dissemination Support](#) (e.g., travel support).

### Career Opportunities

Fundy Ocean Research Centre for Energy (FORCE), Canada's test centre for tidal stream energy research and technology, is seeking a [Communications & Outreach Assistant](#) and a [Facilities & Guest Services Assistant](#) to support FORCE's public engagement efforts and daily operations. Applications are due 25 April 2025.

The Scottish Government is hiring a [Fisheries Data Scientist](#) to collate data and conduct analyses in support of Scottish fisheries management. Applications are due 30 April 2025.

University College Cork is recruiting a [Senior Technical Officer](#) for the Environmental Research Institute Lir National Ocean Test Facility (NOTF) who will work within the Offshore Renewable Energy Research Group within MaREI, the SFI Research Centre for Energy, Climate and Marine. Applications are due 6 May 2025.

The California State Lands Commission is hiring an [Environmental Program Manager I](#) to formulate and administer the Commission's programs to address issues on state lands, plan for the implementation of offshore renewable energy projects, and address other environmental challenges of concern. Applications are due 10 May 2025.

University of Highlands and Islands (UHI) North, West and Hebrides is recruiting a [Research Associate in Active Acoustic Monitoring](#), [Research Associate in Passive Acoustic Monitoring](#), [Research Associate in Marine Sensing](#), and [Research Associate in Algorithm Development and Data Science](#) to join the Environmental Research Institute (ERI) and work on environmental interactions and ecosystem effects of offshore renewable energy. Applications due 16 May 2025.

Monmouth University is seeking applications for a [Marine Fisheries Acoustic Telemetry Scientist](#) in the Biology Department in the School of Science. This is a one-year, grant-funded position for fisheries monitoring related to offshore wind development off the New Jersey coast.

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## Upcoming Events

### Upcoming Webinars

The Supergen Offshore Renewable Energy (ORE) Hub is hosting a webinar, “[Community Perspectives of Wave Energy and Open-Water Testing at PacWave, Oregon](#)”, on 29 April 2025 from 4:00-5:00pm UTC. This session will explore the factors that influence public responses to new developments and help us to understand what may slow or hinder the planning and consenting processes. [Register here.](#)

TEAMER is hosting a webinar, “[How to Write a Good Test Plan](#)”, on 30 April 2025 from 11:00am-12:00pm PDT (6:00-7:00pm UTC). The webinar will focus on what makes up a good scientific test plan, including info specific to marine energy research and the TEAMER program. [Register here.](#)

Ecowende is hosting a webinar on 7 May 2025 from 2:00-3:30pm CET (12:00-1:30pm UTC) to discuss the [use of red blades at Hollandse Kust West](#) and bird behavior around offshore wind farms. To register, email [corine.steenwijk@ecowende.nl](mailto:corine.steenwijk@ecowende.nl) including your name, title, and organization.

The Pacific Offshore Wind Consortium (POWC) is hosting a webinar, “[Offshore Grid Connection: Cable Laying and Monitoring](#)”, on 12 May 2025 from 2:00-4:00pm PST (9:00-11:00pm UTC). The webinar will describe the cabling process, including pre-installation environmental surveys and post-installation monitoring, at the PacWave wave energy testing facility. [Register here.](#)

The New York State Energy Research and Development Authority (NYSERDA) is hosting a [Learning from the Experts](#) webinar, “Emissions Benefits of Offshore Wind”, on 14 May 2025 from 12:00-1:00pm EDT (4:00-5:00pm UTC). The Carbon Trust will discuss the emissions benefits of offshore wind compared to traditional sources of electricity, methods of calculating carbon footprint, and the importance of data. [Register here.](#)

Renewables Grid Initiative (RGI) and Offshore Coalition for Energy and Nature (OCEaN) are hosting a webinar, “[Nature-Inclusive Design solution to support the Black-legged Kittiwake in Belgium](#)”, on 20 May 2025 from 11:30am-12:45pm CEST (9:30-10:45am UTC). The webinar will explore the NID4BirdLIFE project, which seeks to advance the conceptualization, testing, and implementation of nature inclusive design solutions for birds at the Princess Elisabeth Energy Island, with a focus on the black-legged kittiwake. [Register here.](#)

## Upcoming Conferences

Marine Energy Wales is hosting the [Marine Energy Wales Annual Conference 2025](#) on 7-8 May 2025 in Cardiff, Wales.

The [7th International Conference on the Effects of Noise on Aquatic Life \(Aquatic Noise 2025\)](#) will take place from 29 June to 4 July 2025 in Prague, Czech Republic.

The Dutch Marine Energy Centre (DMEC) is hosting the [2025 Nature+ Conference](#) on 30 September 2025 in The Hague, Netherlands and online.

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## **New Documents on Tethys**

*[Tethys](#) hosts thousands of documents on the environmental effects of marine and wind (land-based and offshore) energy, including journal articles, conference papers, and reports.*

## **Marine Energy**

### **[Sea Space Analysis for Wave and Tidal Energy](#) – Lee et al. 2025**

Senate Bill 605 (SB 605, Padilla, Chapter 405, Statutes of 2023) directs the California Energy Commission to evaluate the feasibility, costs, and benefits of using wave energy and tidal energy as forms of clean, renewable energy for California. The evaluation of feasibility, costs, and benefits were discussed in a report published in November 2024 and summarized in the draft 2024 Integrated Energy Policy Report Update (IEPR Update), published in December 2024. This second draft report analyzes suitable sea space for deploying wave and tidal energy projects in state and federal waters. In identifying suitable sea space, this report considers existing data and information of wave and tidal energy resource potential and commercial viability of current technologies, the protection of cultural and biological resources, monitoring and adaptive management techniques, and required transmission facilities and infrastructure.

### **[What is the value of innovative offshore renewable energy deployment to the UK economy? \[2025 Update\]](#) – Noble et al. 2025**

This study quantifies the potential economic benefit that the UK stands to gain through the deployment of innovative offshore renewable energy technologies (floating offshore wind, tidal stream, and wave energy) in domestic and international waters. These are quantified in terms of gross value added (GVA) and full-time equivalent (FTE) jobs. This work is founded on deployment scenarios, where cost, performance and systemic conditions are defined by the 2030 levelised cost of energy (LCOE) targets in the Strategic Energy Technology Plans (SET Plans) for floating offshore wind tidal stream, and wave energy technologies. Deployment and cost reduction modelling informed by the Energy Systems Catapult and the International Energy Agency technology

collaboration programme on Ocean Energy Systems (IEA-OES) form a basis for an economic analytical model.

### **Towards more accurate sound field verification using directional acoustic filtering – Barosin & Raghukumar 2025**

Attributing omnidirectional sound levels to a specific source in the ocean can be challenging when there are multiple competing sources of sound such as boats, or biological activity. Here, we present a method to directionally filter acoustic measurements based on vector measurements of acoustic pressure and particle velocity. The directional discrimination is applied to estimate sound energy from two marine energy sources: sound generated during the decommissioning of an oil platform and those from an operating tidal energy converter. The application of a directional mask leads to distinctly different spectra and some differences in energy, relative to the unmasked scenarios.

## **Wind Energy**

### **Chemical emissions from offshore wind farms: From identification to challenges in impact assessment and regulation – Hengstmann et al. 2025**

The environmental impact of offshore wind farms (OWFs) is starting to be investigated regarding the effect of novel habitat introduction, underwater noise, electromagnetic fields, or exclusion of fisheries. However, the impact of chemical emissions from OWFs remains largely unknown. It is essential to account for these emissions at an early stage, to comprehensively assess the environmental impact with the objective of developing a future fit-for-purpose regulatory framework to protect the marine environment. This review compiled a literature-based list of potential OWF-related chemical emissions containing >200 organic and inorganic contaminants, including polymers. Compounds are categorised according to data source and emission type.

### **Predicting risk to bat species from wind turbine collision in Southeast Asia – Crane et al. 2025**

Wind farms can pose significant risks to bat populations through collisions with turbines, habitat loss, and effects on behavior. With its rich bat diversity and expanding wind power industry, Southeast Asia lacks sufficient data to assess the risks posed to bat species from wind turbine collisions. We aimed to develop a predictive framework for assessing wind turbine risk to bats in Southeast Asia based on global bat fatality data and trait-based assessments. We conducted a review of the literature to compile data on global bat fatalities related to wind turbines. We developed a risk assessment framework comprising 3 components—potential fatality detection index (pDI), potential spatial exposure risk index (pSE), and conservation status—to assess species vulnerability to wind turbines and to generate a conservation prioritization score for Southeast Asian bat species.

## **Underwater Noise Conflict Resolution: Framework Report – Xodus Group 2025**

The Southern North Sea (SNS) Special Area of Conservation (SAC) is designated to protect the habitat for harbour porpoise (*Phocoena phocoena*). However, with increasing activity in region, there is a growing risk that underwater noise (UWN) exceeds levels which are congruent with ensuring Favourable Conservation Status (FCS) of harbour porpoise in the SNS SAC. Xodus was contracted by the Offshore Wind Industry Council (OWIC), through RenewableUK, to support the OWIC Pathways to Growth initiative in identifying frameworks for coordination and conflict resolution to avoid or manage UWN disturbance threshold conflicts. This report aims to identify the current limitations in managing UWN disturbance thresholds in the SNS SAC, focusing on coordination and conflict resolution.

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## **News & Press Releases**

### **Marine Energy**

#### **Eco Wave Power Signs U.S. Manufacturing Agreement to Launch First-Ever Wave Energy Project in the Port of Los Angeles – Eco Wave Power**

Eco Wave Power, a leading onshore wave energy technology company, recently announced the signing of a manufacturing agreement with All-Ways Metal, Inc., a woman-owned business based in California, for the production of floaters for its innovative wave energy project in the Port of Los Angeles. This marks a major milestone in the development of Eco Wave Power's first-ever U.S. proof-of-concept installation. The floaters, which form a key component of Eco Wave Power's proprietary wave energy conversion technology, will be manufactured locally by All-Ways Metal and are scheduled for delivery within 70 days. Once completed, the floaters will be installed and connected to the Municipal Pier One at the Port of Los Angeles, signifying the official launch of the Company's groundbreaking U.S. project.

#### **Cape Horn Engineering joins EPSRC-backed effort to improve tidal turbine modeling (Video) – Offshore Energy**

The UK-based marine technology consultant Cape Horn Engineering has delivered what it described as one of the most accurate and computationally efficient results in a blind tidal turbine validation study, part of a benchmarking initiative funded by the UK's Engineering and Physical Sciences Research Council (EPSRC) and the Supergen Offshore Renewable Energy (ORE) Hub. According to Cape Horn Engineering, the study aimed to accelerate tidal energy technology development and reduce modeling uncertainty in turbine design. It combines experimental data from a large 1.6-meter tidal rotor tested at QinetiQ's Haslar facility under steady flow conditions with and without added turbulence. The goal was to reduce design conservatism and validate numerical modeling methods for offshore renewable energy applications.

## **Province Prepares Tidal Energy Procurement – Nova Scotia Government**

Companies interested in testing tidal energy projects in the Bay of Fundy will be able to apply for a site in the Minas Passage later this spring. Nova Scotia has the highest tides of the world and there is great potential to harness them to generate electricity, create more green jobs and attract more investment. The Province is hiring consultant Power Advisory LLC to manage a procurement to fill two vacant berths at the Fundy Ocean Research Centre for Energy (FORCE) near Parrsboro. Power Advisory LLC will start the procurement in May. The Department of Energy will grant licences and power purchase agreements with Nova Scotia Power to successful applicants. Licence holders will develop agreements with FORCE to use the facility.

## **GKinetic Energy heads to France for waterpower generator testing – Offshore Energy**

Ireland-headquartered GKinetic Energy will test its 3 kW waterpower generator at the Ifremer flume tank in Boulogne sur Mer, France, as part of preparations for commercial pilots scheduled for later this year. The testing campaign is supported by the RISEnergy Transnational Access (TA) programme, an EU-funded initiative aimed at accelerating renewable energy technologies. “The flume is equipped with advanced laser technology that allows us to map flow behaviour around and through our turbines. Using 3D laser doppler velocimetry, we can accurately map the flow of water through our patented counter-rotating turbines to further increase efficiency,” GKinetic Energy said. The Irish developer said that they look forward to working with the Ifremer team again this Summer. In March 2024, GKinetic Energy secured a patent in India for its hydrokinetic turbine, representing the tenth patent awarded to the company.

## **TEAMER adds new testing facility for marine energy research – Offshore Energy**

The Surface Engineering & Tribology Laboratory at Oak Ridge National Laboratory (ORNL) has joined the U.S. TEAMER facility network, expanding developer access to specialized tribology testing for marine energy applications. According to TEAMER, the lab supports current, tidal, and wave energy technologies, focusing on installation, structure, and economics. Its capabilities include bench-scale evaluation of candidate lubricants and bearing or gear materials, tailored to the operating conditions of marine turbomachinery. Tribological testing protocols are customized after detailed tribosystem analysis, considering surface properties, lubricant chemistry, temperature, pressure, and motion. Tests follow American Society for Testing and Materials (ASTM) standards where applicable, with outcomes offering comparisons to commercial baselines and insights into lubricant-surface compatibility.

## **Wind Energy**

### **Vestas and Ecowende test red blades at Hollandse Kust West – Ecowende**

At Ecowende’s initiative, Vestas is supplying red blades for a new trial at Hollandse Kust West. The trial involves one red-coated blade on each of seven wind turbines. The



purpose is to investigate whether the red color increases blade visibility to birds and helps reduce the risk of collisions, compared to the traditional grey blades. Ecowende, in collaboration with Waardenburg Ecology, DHI and Robin Radar, is leading the field research to test this hypothesis. Vestas supports the initiative by delivering the red blades for the trial. The goal is to assess the effectiveness of red blades as part of a broader strategy to protect seabirds. The objective of the single blade in a different colour is to create a smear, which is thought to be better visible for birds. A lot is still unknown on this effect, including which colours and patterns work best.

### **RWE achieves environmental first for UK with underwater noise mitigation technology – RWE**

RWE has been working with Hydrotechnik Offshore to successfully introduce an innovative underwater noise-abatement technology, known as a bubble curtain, for offshore wind farm construction in the UK. The breakthrough deployment at the Sofia Offshore Wind Farm, located 195km off the coast of England, represents a significant step in protecting marine life from underwater noise generated during piling activities. The bubble curtain, already adopted across Europe, reduces the propagation of underwater noise by creating a barrier of rising bubbles around the turbine installation site. By dampening sound waves, this technology mitigates disturbances to marine species such as harbour porpoises, dolphins, and whales, which rely on ultrasound for orientation.

### **Equinor suspends offshore construction activities for the Empire Wind project – Equinor**

In accordance with a halt work order issued by the US government, Empire Offshore Wind LLC will safely halt the offshore construction in waters of the outer continental shelf for the Empire Wind project. Empire is engaging with relevant authorities to clarify this matter and is considering its legal remedies, including appealing the order. The federal lease for Empire Wind was signed with the US Administration in 2017. Empire Wind 1 has validly secured all necessary federal and state permits and is currently under construction. The project is being developed under contract with New York State Energy Research and Development Authority (NYSERDA) to provide an important new source of electricity for the State of New York.

### **Windfarm Capable of Powering Half of Scotland's Homes – UK Government**

The UK's drive towards clean power, which is a huge jobs and economic opportunity for Scotland, took a significant step forward recently when Scottish Secretary Ian Murray switched on full power at Ocean Winds' new Moray West offshore windfarm. The windfarm, located 13 miles off the coast of Buckie, is one of Scotland's largest offshore windfarms. It will generate up to 882MW output – enough to power 1.3 million homes – half of Scotland's households. Upon full power, Ocean Winds will become the largest offshore wind operator in Scotland, running two windfarms off the North East coast and with a third in development. Ocean Winds has used more than 80 UK suppliers in the

project to date, which has involved installing the biggest turbines yet in British waters, spanning up to 257m above sea level.

### **First Turbine Up at Ørsted's Greater Changhua 2b & 4 Offshore Wind Farm – Offshore Wind**

The first of 66 Siemens Gamesa 14 MW wind turbines that will make up the Greater Changhua 2b & 4 offshore wind farm in Taiwan has been installed. The major milestone for Ørsted's 920 MW offshore wind project also marks a milestone for Siemens Gamesa, whose SG 14-236 DD wind turbine model is installed offshore for the first time. This is the company's model with a 236-metre rotor, while SG 14-222 DD has already been installed on offshore wind farms, including Sofia and Moray West. The first wind turbine at the Taiwanese project site was installed shortly after the first suction bucket jacket (SBJ) foundation. Aside from being the first project to use Siemens Gamesa 14-236 DD wind turbines, Changhua 2b & 4 is also the first large-scale offshore wind farm in the Asia-Pacific region to use SBJ foundations.