

TETHYS BLAST

27 March 2026

[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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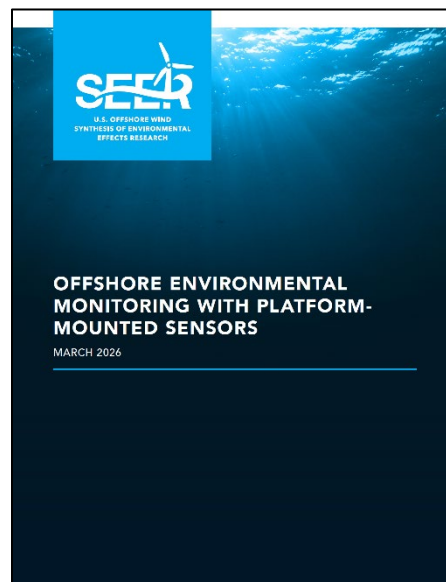
[Marine Energy Documents](#)
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Announcements

New SEER Research Briefs

The Synthesis of Environmental Effects Research (SEER) project has published two new educational research briefs, [The Use of Artificial Intelligence in Offshore Energy and Environmental Research](#) and [Offshore Environmental Monitoring with Platform-Mounted Sensors](#), on Tethys.



New Entanglement Fact Sheet

Pacific Northwest National Laboratory (PNNL) has released a new fact sheet, [Entanglement: A Low Risk for Marine Animals Around Marine Energy Devices](#), on Tethys. As part of the [Marine Energy Video Series](#), PNNL also recently published a short video on [Entanglement Risk](#).

ENTANGLEMENT: A LOW RISK FOR MARINE ANIMALS AROUND MARINE ENERGY DEVICES

Marine energy devices can be secured to the seafloor by mooring lines, enabling them to remain in place on the sea surface or in the water column. In an array of devices, multiple underwater cables converge into a single power export cable installed on the seafloor. In some cases, oceanographic instruments are deployed alongside marine energy devices, but at separate mooring lines, to collect data like wave height and period. Some stakeholders have expressed concern that these mooring lines and cables may entangle marine animals by creating a risk of entanglement, though this risk remains uncertain.

STATUS OF KNOWLEDGE

- ▶ Floating marine energy devices, like wave energy converters, are held in place by mooring lines and these associated power export cables. While the possibility of entanglement risk remains uncertain, there are concerns that some marine animals may get trapped in these lines or cables and find themselves entangled.
- ▶ The presence of oceanographic instruments with surface lines near marine energy devices may increase the risk of entanglement to marine animals.
- ▶ Most available research on entanglement is associated with lost fishing gear. Entanglement of marine animals in fishing gear can result in injuries, swimming difficulties, and/or drowning.
- ▶ No entanglement of marine animals in the mooring lines or cables of a marine energy system has been observed to date. However, on tested occasions, some marine animals have become entangled in the lines of oceanographic instruments.
- ▶ Mooring lines and cables from marine energy devices take up very little space in the water column and they are inert, preventing the formation of loops that could entangle marine animals.
- ▶ Entanglement that might happen from the interaction between marine animals and the mooring lines used to secure marine energy devices and oceanographic instruments is called primary entanglement.
- ▶ Secondary entanglement might happen in the unfortunate event that marine debris, such as lost or abandoned fishing gear, are caught on marine energy devices, oceanographic instruments, mooring lines, or cables, subsequently trapping marine animals.
- ▶ Because mooring lines and cables used in marine energy systems do not have loose ends or sufficient slack to create loops, the risk of entanglement for a small number of devices (up to six) is considered low by the scientific community.

FACTORS INFLUENCING ENTANGLEMENT

- ▶ Entanglement risk depends on the configuration and characteristics of lines or cables, the depth, location, and type of marine energy device, as well as prevalence, behavior, and size of the animals at risk.
- ▶ The potential of snagging the tail affects the risk of entanglement, with leader lines creating a lower risk.
- ▶ Large slow-moving marine animals, such as whales, sea turtles, and humpback whales, have a greater risk of entanglement than smaller, fast-moving animals due to their body size, feeding habits, swimming behaviors, and migration patterns. Other animals primary at risk of entanglement around floating marine energy devices include seabirds, reindeers, and ocean sunfish.
- ▶ Biological characteristics and sensory abilities of specific groups of marine animals can have a significant effect on their entanglement risk, such as their ability to detect objects and colors, respond to acoustic deterrent devices, or swim safely around obstacles.

REMAINING UNCERTAINTIES

- ▶ The risk of entanglement remains unknown for large arrays with more than six marine energy devices and their associated oceanographic instruments. Currently, there are not enough devices in the water to learn about the effects of large arrays with multiple lines and the position of dynamic cables draped between devices and connected to oceanographic instruments.
- ▶ As more arrays of marine energy devices are deployed, marine animal behavior might change, attraction to and aggregation around devices may increase the probability of entanglement of marine animals, although mooring lines and devices in the water may also lead animals to avoid an array.

LOOKING FORWARD

- ▶ In the absence of observation data around marine energy systems and associated oceanographic instruments, the ongoing entanglement risk for marine animals will need to be investigated with computer models, particularly to anticipate scaled-up industry with larger arrays of devices.
- ▶ Once arrays of floating marine energy devices are deployed, it will be important to collect field observation data to better understand the risk of entanglement and consequences for marine animals.
- ▶ Improving mooring technologies to prevent changes in tension or failure of mooring lines, as well as regular visual inspections of lines and cables may help lower the risk of entanglement for marine animals.
- ▶ Understanding of entanglement and associated risks will improve with sharing of information, data, and research findings across the marine energy industry and other industries.

For more information, contact tethys@pnnl.gov or visit www.pnnl.gov/energy

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New WREN Short Science Summary

Wind Energy-Environmental Research & Engagement Network (WREN) recently published a new Short Science Summary, [Effects of Onshore Wind Energy on Semi-Domesticated Reindeer](#).

WREN SHORT SCIENCE SUMMARY
WIND ENERGY-ENVIRONMENTAL RESEARCH & ENGAGEMENT NETWORK

Effects of Onshore Wind Energy on Semi-Domesticated Reindeer

SUMMARY

Reindeer or caribou (*Rangifer tarandus*) are native to the Northern Hemisphere, where indigenous people have been domesticating herds for centuries. Reindeer herding requires extensive and continuous pastoralists to support a seasonal migration and life cycle. However, the development of wind farms in reindeer pastures significantly affects their habitat use and movement. It raises concerns among reindeer herders about the sustainability of the indigenous culture tied to reindeer husbandry. This summary provides a general overview of current research on the effects of wind energy on semi-domesticated reindeer.

SPECIES

The reindeer or caribou (*Rangifer tarandus*) is a ruminant species native to the Northern Hemisphere. They inhabit upland and tundra areas in the sub-Arctic. Indigenous people in the Northern Hemisphere have domesticated reindeer for centuries. Reindeer herding follows a free-ranging seasonal cycle with multiple stages, including migration between winter forage areas, spring calving sites, summer pastures in higher terrain, and culling two times in a heeding year to balance herd size and economic returns. It is primarily practiced in Finland, Norway, Sweden, Russia, and to a lesser degree in China, Mongolia, Alaska, and Canada. The development of wind energy in semi-domesticated reindeer pastures has raised concerns about its effects on reindeer and indigenous herding practices. An example of the Sami people's dispute over wind energy development on the Finn peninsula in Norway underscores the socio-cultural concerns of indigenous people.

WREN SHORT SCIENCE SUMMARY
WIND ENERGY-ENVIRONMENTAL RESEARCH & ENGAGEMENT NETWORK

Effects of Onshore Wind Energy on Semi-Domesticated Reindeer

MAIN RISKS AND EFFECTS

The socioeconomic areas at risk for onshore wind farms, but they are also critical for reindeer grazing, migration, and culling. The effects of wind energy on semi-domesticated reindeer include habitat degradation, fragmentation of pastures, and socio-economic and cultural impacts. Some studies demonstrate that reindeer habitat use will likely have a minimal effect if wind farms are built on previously habitat for reindeer. Most studies show that human activities during the construction phase significantly affect reindeer habitat use and migration. Studies on the effects of wind energy development on reindeer habitat use yielded mixed results. What some studies showed that wind farms have reindeer during the calving season and winter grazing, and had adverse effects on their habitat use with evidence of wind turbines and related infrastructure by choice to low biodiversity, other studies state that the density of reindeer calves change during the period before, during, and after the construction of wind farms and power lines. The magnitude of these impacts may partly depend on local conditions, such as topography, infrastructure, forage availability, population density, climate, and study design. However, reindeer herders report few visual and acoustic effects of the wind turbines reduce grazing activities near the wind farms, as indicated by some studies, and that reindeer exhibit more active and vigilant behaviors when closer to the wind farms. Related infrastructure, such as roads and power lines, also negatively affects reindeer habitat use and migration, with higher movement rates near larger roads. Unlike potential effects on wild reindeer or other wildlife, such as birds or mammals, semi-domesticated reindeer effects involve multidisciplinary interactions with social, political, ecological, and economic aspects. In addition, reindeer herding is linked to the deep culture and livelihoods of the Sami people (Box 1) and their identity. Reindeer herders in the vicinity of onshore wind farms are concerned for the development of wind energy infrastructure may threaten changes in reindeer herding and migration rates, thereby disrupting the continuation of traditional ecological knowledge and culture closely tied to reindeer husbandry. In addition, increased access provided by reindeer new wind energy infrastructure may subsequently increase herders' stress, travel costs, and time spent herding, thereby increasing economic vulnerability.

Box 1: Sami People

The Sami are an indigenous population residing across Finland, Norway, Sweden, and Russia. Of their estimated 80,000 members, nearly half reside in Norway. Their primary livelihoods include reindeer herding, fishing, and hunting.

Tethys User Review Survey

We are seeking feedback on Tethys! Please complete this 3-minute [Tethys User Feedback Survey](#) to help us understand how the wind and marine energy communities use Tethys and determine how we can continue to improve the site.

MECC Applications Open

The U.S. Department of Energy's (DOE) Hydropower and Hydrokinetic Office (H2O) and the National Laboratory of the Rockies (NLR) have opened applications for the [2027 Marine Energy Collegiate Competition \(MECC\)](#), which challenges multidisciplinary teams of undergraduate and graduate students to offer unique solutions to marine energy challenges. Apply by 1 May 2026.

Draft Blueprint for Building a West Coast Science Collaborative Now Available

The California Ocean Protection Council has released a [Draft Blueprint for the West Coast Science Collaborative \(WCSC\)](#) to support environmentally responsible offshore wind development through objective scientific expertise, cross-sector collaboration, and public information sharing. Submit your comments on the draft blueprint by 1 April 2026.

Public Comment Period Open: Oregon Offshore Wind Energy Roadmap

The Oregon Department of Land Conservation and Development (DLCD) has released a [draft Offshore Wind Energy Roadmap for public review](#). Directed by Oregon House Bill 4080, the Roadmap outlines how Oregon could evaluate, plan for, and manage potential offshore wind energy development. DLCD is seeking public input by 27 April 2026.

U.S. Knauss Fellowship Applications Open

The National Sea Grant College Program is accepting applications for its [2027 Knauss Fellowship Program](#), which places graduate students interested in ocean, coastal and Great Lakes resources in executive and legislative offices where they contribute to real-world policy work. Apply by 3 June 2026.

New Costa Rican Marine Energy Research Network

Red Mare CR, the new Costa Rican Marine Energy Research Network, was recently launched as a collaborative scientific and technical platform aimed at strengthening research, innovation, and governance related to marine energy resources in Costa Rica. The network seeks to promote high-quality scientific data, technological development, and interdisciplinary collaboration. For further details, please contact [Dr. Rodrigo Rojas](#).

RWSC & ROSA Data Management Plan Template

The Regional Wildlife Science Collaborative (RWSC) and Responsible Offshore Science Alliance (ROSA) have developed a joint [Data Management & Sharing Plan \(DMSP\) template](#) to

support high-quality data stewardship across U.S. Atlantic offshore research projects. The template is designed for anyone to organize and communicate how data will be generated and made available from studies of wildlife, fisheries, and ocean ecosystems in U.S. Atlantic waters.

Calls for Abstracts

The Partnership for Research in Marine Renewable Energy (PRIMaRE) has opened the Call for Abstracts for the [13th PRIMaRE Conference](#) through 30 March 2026. PRIMaRE 2026 will take place on 23-24 June 2026 at the Loughborough University in Loughborough, England.

The [Call for Abstracts](#) for the [International Conference on Ocean Energy \(ICOE\) / Ocean Energy Europe \(OEE\) 2026](#) is open until 31 March 2026. ICOE/OEE will take place on 5-7 October 2026 in The Hague, The Netherlands.

The Pacific Ocean Energy Trust is accepting [Workshop, Presentation, and Session Topic submissions](#) for the [2026 Ocean Renewable Energy Conference \(OREC\)](#) until 31 March 2026. OREC, in partnership with the 2026 Marine Energy Collegiate Competition (MECC), will take place on 18-21 May 2026 in Portland, Oregon, USA. Early bird registration is available until 31 March 2026.

The American Society of Mechanical Engineers (ASME) is inviting submissions to a special session, “Design and Dynamics for the Blue Economy”, at the [International Design Engineering Technical Conferences & Computers and Information in Engineering Conference \(IDETC-CIE 2026\)](#). Submit papers by 31 March 2026 and presentation-only abstracts by 20 April 2026. For questions, email [Prof. Maha Haji](#). IDETC-CIE will take place on 23-26 August 2026 in Houston, Texas, USA.

The INSITE Programme has opened the [Call for Abstracts](#) for the 2026 [Structures in the Marine Environment \(SIME\) Conference](#) through 2 April 2026. SIME will take place on 9-10 June 2026 in Newcastle, England.

The [Call for Abstracts](#) for the [North American Wind Energy Academy \(NAWEA\)/WindTech Conference 2026](#) is now open through 15 April 2026. NAWEA/WindTech will take place on 21-23 September 2026 in Portland, Oregon, USA.

The [Call for Abstracts](#) for [OCEANS 2026 Monterey](#) is now open through 20 April 2026. The conference will take place on 21-24 September 2026 in Monterey, California, USA.

The [Call for Abstracts](#) for the [156th Annual Meeting of the American Fisheries Society](#) is open until 22 April 2026. The meeting will take place from 30 August to 3 September 2026 in Columbus, Ohio, USA. Consider submitting to the symposium session, [The Blue Economy, Fish, and Fisheries – Emerging Knowledge, Technology Advancement, and Applications](#).

The [Call for Abstracts](#) for the [2026 University Marine Energy Research Community \(UMERC\) Annual Conference and Marine Energy Technology Symposium \(METS\)](#) is open through 30

April 2026. U MERC/METS 2026 will take place on 4-6 August 2026, at Stevens Institute of Technology in Hoboken, New Jersey, USA.

The Society for Underwater Technology's (SUT) Offshore Site Investigation and Geotechnics (OSIG) Committee has opened the [Call for Abstracts](#) for the [10th International SUT OSIG Conference on Geophysics, Geoscience & Geotechnics for Energy and Resource Resilience](#) until 30 April 2026. The conference will take place on 14-16 September 2027 in London, England.

NetZero Atlantic has opened the [Call for Abstracts](#) for the [Atlantic Canada Offshore Wind Readiness Forum 2026](#) until 14 May 2026. The Forum will take place on 16 September 2026 in Halifax, Nova Scotia.

Marine Renewables Canada has opened the [Call for Research & Technical Track Abstracts](#) and the [Call for Member Workshop Proposals](#) for the [Marine Renewables Canada 2026 Conference & Exhibition](#) through 15 May 2026. The conference will take place on 17-19 November 2026 in Ottawa, Ontario, Canada.

Marine Technology Society (MTS) has opened the Call for Abstracts for the [2026 Global eDNA Conference](#) until 29 May 2026. The conference will take place 28-30 October 2026 in Seattle, Washington, USA.

The [Call for Abstracts](#) for the [3rd Australian Ocean Renewable Energy Symposium \(AORES\)](#) is open through 31 May 2026. AORES will take place 9-11 November 2026 in Adelaide, Australia.

Funding & Testing Opportunities

Massachusetts Clean Energy Center (MassCEC) has released a new [Request for Proposals](#) seeking a consultant team to develop a public-facing report documenting workforce development lessons from the Vineyard Wind 1 project. Apply by 6 April 2026.

MassCEC has also released a funding opportunity through its [Offshore Wind Science, Research & Analysis Program](#) to support applied research that advances the development of offshore wind in southern New England and the Gulf of Maine. MassCEC is hosting an [informational webinar](#) on 1 April 2026 at 11:30am EDT (3:30pm UTC). Apply by 28 April 2026.

The Scottish Government has opened applications for the [Marine Fund Scotland for 2026-27](#), which is focused on supporting projects that deliver outcomes relating to Scotland's Blue Economy Vision. The closing date for the first round of applications is 15 May 2026.

The U.S. Testing Expertise and Access for Marine Energy Research (TEAMER) program, which supports marine energy testing and development projects, is accepting [Request for Technical Support \(RFTS\) 18](#) applications until 5 June 2026. TEAMER now provides [expertise, non-open water, and open water support](#), as well as [commercialization support](#).

UK Research and Innovation (UKRI) has opened applications for the [Clean Maritime Demonstration Competition 7: Deployment trials](#), which will fund real world demonstrations of

innovative clean maritime technologies in an operational setting. UK organizations and collaborators can apply by 15 July 2026.

Career & Internship Opportunities

The University of Washington (UW) is offering [four paid Undergraduate Research Assistant opportunities](#) to UW students. The students will support projects focused on Distributed Acoustic Sensing (DAS) for salmon, underwater noise sensors for the Drifting Acoustic Instrumentation System (DAISY), particle image velocimetry (PIV), and wave energy converters (WECs).

Baldwin Wallace University is hiring a [Marine Energy Research & Outreach Fellow](#) to gain hands-on experience in marine energy and water management working directly with community stakeholders and partner organizations including the Cleveland Water Alliance and the Port of Cleveland.

Offshore Renewable Energy Catapult is seeking a [Portfolio Management Office \(PMO\) Analyst](#) to support portfolio processes, controls, and reporting cycles and a [Senior PMO Analyst](#), who will be responsible for delivering portfolio-level reporting, data analytics, and insight to support executive decision-making.

Responsible Offshore Science Alliance (ROSA) is accepting applications for its [Science Scholar Summer Internship](#) until 27 March 2026. This remote, paid internship is for current graduate students interested in marine science and the intersection of offshore development and fisheries.

Finnish Meteorological Institute is seeking a [Doctoral Researcher/Ocean Modeler](#) to support the DTO4OWE (Digital Twin of the Ocean for Offshore Wind Energy) project and numerical modelling of the Baltic Sea to study the effects of offshore wind energy. Apply by 7 April 2026.

PNNL is hiring an [Undergraduate Marine/Wind Energy Database Intern](#) to support data entry, tag review, and QA/QC for documents, events, metadata, tools, and educational resources on [Tethys](#). The intern will also help compile project information, environmental research, and related datasets for marine energy projects and offshore wind farms. Apply by 9 April 2026.

France Énergies Marines is looking for its next [Head of the “Wildlife and Interactions” Department](#). This is a strategic leadership role at the crossroads of marine ecology and offshore renewable energy development. Apply by 12 April 2026.

European Marine Energy Centre (EMEC) is hiring a [Project Portfolio Manager](#) to manage the delivery of decarbonisation projects underneath the Islands Centre for Net Zero (ICNZ) program and a [Business Development Officer \(Graduate\)](#) to identify, develop, and secure opportunities for EMEC to grow its portfolio of projects. Apply by 17 April 2026.

PNNL is also seeking a [Data Scientist - Field Robotics and AI](#) to help continue to execute and grow its burgeoning portfolio in field robotics, sensing, and AI. This role seeks to add an experienced researcher to the existing robotics, software, and AI team within Coastal Sciences. Apply by 21 April 2026.

Upcoming Events

The [Tethys Events Calendar](#) highlights key events from around the world related to wind and marine energy, including conferences, webinars, workshops, and more.

Upcoming Webinars

Open Communications for the Ocean (OCTO) is hosting a webinar, “[Valuing Marine Ecosystem Services for Better Decisions](#)”, on 8 April 2026 at 1:00pm EDT (5:00pm UTC). Angela Fletcher and Glen Delaney of Earth Economics will introduce the fundamentals of ecosystem service valuation and demonstrate how they have applied these methods in marine and coastal contexts.

TEAMER is hosting a webinar, “[TEAMER Commercialization Facility Showcase](#)”, on 8 April 2026 from 11:00am-12:30pm PDT (6:00-7:30pm UTC). During the webinar, TEAMER facilities offering Commercialization support capabilities will introduce the types of support they can offer and the experts who carry out the work. The facilities presenting are NLR, VentureWell, Factor, OpenSeas Technology Innovation Hub, Yet2, and Environmental Science Associates.

The National Laboratory of the Rockies is hosting the next webinar in its [Marine Energy Microgrid and Power Electronics Webinar Series](#), “[A HERO WEC Journey: Energizing Microgrids With Wave Energy](#)”, on 13 April 2026 at 12:00pm MDT (6:00pm UTC). The webinar will cover practical considerations for deploying wave energy devices and lessons learned from real-world Hydraulic and Electric Reverse Osmosis Wave Energy Converter (HERO WEC) deployments.

Discovery of Sound in the Sea (DOSITS) is hosting the first webinar in its *2026 DOSITS Webinar Series*, “[Using acoustic tags and Uncrewed Aerial Systems to study cetaceans Overview](#)”, on 15 April 2026 at 12:00pm EDT (4:00pm UTC). Join for a discussion on the deployment and use of acoustic tags on cetaceans to study their movement and behaviors.

WREN is hosting a three-part [Mitigation Hierarchy Webinar Series](#) on the application, effectiveness, and future development of the Mitigation Hierarchy to improve practice in wind energy and biodiversity, featuring panel discussions with experts from regulation, industry, research, and consultancy across different countries. [Register for all three webinars here.](#)

- [Part 1: Global Perspectives](#) will take place on 16 April 2026 from 12:00-1:00pm EDT (4:00-5:00pm UTC) and explore how the Mitigation Hierarchy is applied and perceived across different countries and stakeholder groups in wind energy development.
- [Part 2: Effectiveness](#) will take place on 30 April 2026 from 12:00-1:00pm EDT (4:00-5:00pm UTC) and examine whether current mitigation measures in wind energy projects are effectively achieving their intended biodiversity outcomes.
- [Part 3: Solutions](#) will take place on 7 May 2026 from 12:00-1:00pm EDT (4:00-5:00pm UTC) and synthesize findings from the previous sessions and discuss concrete solutions, guidance, and pathways towards a more strategic and nature-positive application of the Mitigation Hierarchy.

Upcoming Short Courses

Atlantic Marine Energy Center (AMEC) is offering graduate-level courses that require knowledge in marine energy, engineering, and other technical skills. [Tidal & Water Current Energy Conversion](#) will take place on 10-14 August 2026 at the University of New Hampshire, Durham, New Hampshire, USA. Apply by 31 March 2026.

The University of Alaska Fairbanks (UAF) is offering a 5-day graduate-level short course, [Hydrokinetics in a Week: Fieldwork and Fish Sampling on the Tanana](#), from 26 July to 1 August 2026 at UAF and the Tanana River Hydrokinetic Test Site in Fairbanks and Nenana, Alaska. The course will introduce students to field research for hydrokinetics, including resource characterization, turbine testing, and environmental monitoring. Apply by 27 March 2026.

Aalborg University is offering a [PhD-level Course on Numerical and Experimental Modelling and Control of Wave Energy Converters](#) from 11-22 May 2026 in Aalborg, Denmark. This course is designed to provide researchers entering the wave energy sector with a comprehensive introduction to the fundamental concepts required to analyze various types of structures. Apply by 20 April 2026.

Upcoming Forums & Workshops

Orbital Marine Power is hosting an [Orbital and Eauclaire Tidal Energy Supply Chain Forum](#) on 11 May 2026 in Halifax, Nova Scotia. This event will provide an overview of the project, outline expected supply chain opportunities, and introduce the process that will be used to identify potential suppliers.

TEAMER is hosting a [Deck Ops Workshop](#) on 7-9 July 2026 at the Coastal Studies Institute in Wanchese, North Carolina, USA. This extended, in-person workshop will allow for deep participant engagement, integration of hands-on deployment scenarios, and increased access to experienced marine energy professionals, with emphasis on design-for-deployment, resiliency, and cross-discipline collaboration. Apply by 3 April 2026.

Upcoming Conferences

[OCEANOISE 2026](#) will take place 25-29 May 2026 in Barcelona, Spain. Early bird registration is available until 15 April 2026.

International Network on Offshore Renewable Energy (INORE) recently announced that the [2026 INORE North American Symposium](#) will take place from 27 July to 1 August 2026 in Hoboken, New Jersey, USA, and the [2026 INORE European Symposium](#) will take place from 27 September to 4 October 2026 in Bilbao, Spain. Applications will open soon.

Renewable Energy Wildlife Institute (REWI) is hosting the [16th biennial Wind Wildlife Research Meeting \(WWRM 2026\)](#) will take place 27-30 October 2026 in Albuquerque, New Mexico, USA. The Call for Abstracts will open soon.

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

[Development and application of an environmental risk register for marine energy device and project developers](#) – Freeman et al. 2026

Based on existing risk registers, a novel marine energy environmental risk register was created to help the marine energy industry move beyond remaining barriers. This risk register aims to aid marine energy device and project developers identify and assess potential environmental risks early in device design or project planning, document and track potential environmental interactions, prioritize risks and determine risk responses, and make decisions throughout device or project development. It can also be used as a tool to assist in communicating with regulators and advisors during permitting processes and to inform stakeholder and community engagement efforts. This paper details the methods and process to develop a risk register specific to environmental effects of marine energy and describes two use cases (one for wave energy and another for tidal energy) to highlight example results.

[IEA-OES Annual Report: An Overview of Ocean Energy Activities in 2025](#) – Ocean Energy Systems (OES) 2026

IEA-OES is the International Energy Agency's Technology Collaboration Programme (TCP) dedicated to ocean energy systems (OES). Through the TCP framework, participating countries collaborate to accelerate research, innovation and deployment by sharing knowledge, developing common methodologies and delivering joint studies and Tasks that address technical, environmental and policy challenges. This Annual Report presents the collaborative work of IEAOES, emphasizing key achievements and recent global developments. It addresses ocean energy policies, research advancements, and deployment progress across member countries, highlighting the collective impact and progress of this international cooperation.

[The Status of Marine Energy of Costa Rica: Challenges and Opportunities for Grid Integration](#) – Rojas-Morales et al. 2026

Marine renewable energy could support Costa Rica's decarbonization pathway, but its offshore resource base and enabling conditions remain poorly characterized in the body of knowledge. This study provides the first integrated assessment of marine energy resources, grid integration opportunities, and governance challenges in Costa Rica. A meta-analysis of 76 technical, legal, and policy sources is combined with qualitative doctrinal analysis, GIS-based multi-criteria evaluation for Ocean Thermal Energy Conversion (OTEC), and satellite and reanalysis data for winds, waves, currents, and sea surface temperature to estimate power densities and extractable energy. The analysis

highlights major infrastructural, legal, and social barriers but concludes that marine energy can play a pivotal role in diversifying Costa Rica's renewable-dominated electricity market.

Wind Energy

[Reimagining community-centered engagement to guide offshore wind planning and development](#) – Henderson et al. 2026

Community engagement in energy development is increasingly recognized as critical to align project design choices with the needs and perspectives of affected communities. However, offshore wind (OSW) development along the U.S. West Coast has often seen engagement efforts that are inconsistent, delayed, or disconnected from local decision-making. This study advances theoretical and applied understanding of public participation in energy planning by developing a framework for community-centered engagement tailored to the governance and socio-political contexts of OSW. We integrate insights from a literature review, a community inventory, and 25 semi-structured interviews with experts from government agencies, developers, consultants, Tribal representatives, NGOs, and research institutions.

[Fish and Fisheries Offshore Wind Research Gaps Analysis](#) – Responsible Offshore Science Alliance (ROSA) 2026

Offshore wind development along the U.S. Atlantic Coast has accelerated rapidly over the past decade, bringing increased attention to the interactions between offshore wind infrastructure, marine ecosystems, and fisheries. In parallel, a growing body of research and monitoring has emerged to better understand these interactions. However, this work is funded and conducted by a wide range of entities, including federal and state agencies, offshore wind developers, research institutions, and non-profit organizations, making it challenging to assess the overall state of knowledge and identify remaining research needs. The Research Gaps Analysis presented in this report builds upon the Fish and Fisheries OffshoRe Wind Research Database (FishFORWRD) database to systematically evaluate how existing research aligns with identified research needs across the U.S. Atlantic Coast offshore wind–fisheries research landscape.

[Movement Models to Predict Low-Altitude Flight of Soaring Birds Using Look-Ahead Environmental Factors](#) – Sandhu et al. 2026

Advances in fine-scale movement modeling of soaring birds can aid efforts to understand and resolve the impacts of anthropogenic activities on such birds. Soaring birds often rely on underlying terrain and low-altitude updrafts to govern their flights at rotor-swept altitudes (≤ 200 m above ground level), which puts them at risk of collision with wind turbines. We developed a data-driven Markov model at 1-s resolution that predicts the fine-scale flight behavior of golden eagles (*Aquila chrysaetos*) as a function of ecological covariates at the current location as well as those within an eagle's line of sight. We only considered ecological covariates that are readily available in real-time (ground elevation

and wind conditions). Latent factors (age, sex, species, behavioral intent, migratory status) were intentionally left out of the model. We calibrated the model using golden eagle telemetry data collected in two different ecoregions of the United States.

News & Press Releases

Marine Energy

[New deal to unlock full potential of renewable energy in Wales](#) – Welsh Government

The Renewable Energy Sector Deal will be a strategic partnership between Welsh Government and industry, focused on unlocking the full economic potential of Wales' renewable energy future. It coincides with the publication of the latest Energy Generation and Energy Use in Wales report, which shows renewable electricity generation in Wales in 2024 was equivalent to 54% of its electricity consumption. The target is for renewable electricity generation to meet 70% of our consumption by 2030 and 100% by 2035, whilst also delivering at least 1.5 gigawatts of locally owned renewable energy capacity by 2035. The Sector Deal will help deliver on these ambitious targets by accelerating renewable deployment across onshore and offshore wind, solar, marine and hydro. It also aims to strengthen supply chains, build the workforce of the future and ensure that communities across Wales reap the benefits.

[Eco Wave Power Announces Award of Land Use Tender for Wave Energy Project in Suao Port, Taiwan](#) – Eco Wave Power

Eco Wave Power recently announced a key milestone in the development of its wave energy project in Suao Port, Taiwan. The Company's Taiwanese partner, I-Ke International Ocean Energy Co., a subsidiary of Lian Tat Company, informed Eco Wave Power that in December 2025 it signed the land lease agreement with Suao Port for the designated wave energy project site. The agreement provides for a five-year lease term, with an option for extension, enabling the advancement of the project's next development phase. Under the lease terms, the application for the transfer of land use rights must be submitted to the Taiwan International Ports Corporation by March 22, 2026, and all port work permits are expected to be obtained by October 2026, establishing a clear regulatory pathway for the project's implementation.

[Project Update on Minesto Dragons in the Faroe Islands: Microgrid-scale powerplant Dragon 4 in electricity production](#) – Minesto

Minesto's commercial microgrid scale powerplant, Dragon 4, is now installed and produces electricity to the Faroese grid. This work is a preparatory first step of the microgrid project partly funded by Swedish Energy Agency and in close collaboration with project partners including Faroese utility company Sev. The Dragon 12 power plant has been successfully recovered to shore in Vestmanna after a 10-month grid-connected period. Extensive inspections and evaluations of system status will be conducted. Initial

conclusions show that the system condition is as expected with signs of wear and tear after withstanding ocean conditions and exceeding set service intervals. Operations will continue throughout spring and summer primarily to serve delivery of the microgrid project, and to accommodate study visits from international commercial partners.

Momentum builds for Tidal Lagoon in Swansea – Marine Energy Wales

Plans to deliver a once in a generation tidal lagoon in Swansea Bay have taken a major step forward, following a landmark agreement between Swansea Council and Batri Ltd. The deal will see the former Tir John landfill site transformed into a major new solar farm, creating the clean-energy foundation needed to power a wider programme of renewable energy projects, including the proposed tidal lagoon. The lagoon would harness the power of the tides to generate predictable, renewable electricity, create thousands of skilled jobs and drive significant long-term economic growth for Swansea and the wider region. The development of a new solar farm is the first major step in the ground-breaking initiative and will be delivered in three phases, with planning permission already in place for phase one.

Norwegian wave energy pilot wraps up sea trials – Offshore Energy

Norwegian wave power developer Havkraft has completed sea trials of its pilot device, with the gathered data to help guide the next stages of development. Following a lab test carried out in spring 2025, Havkraft deployed the new test pilot called Ocean One, a 1:4 scaled version of a future full-scale prototype, outside Måløy on January 9, in a water depth of 10 meters. The company reported on March 16 that the pilot device had completed its sea trials, which had the goal of testing the anchoring system and the reaction system (to TRL5), collecting data crucial for turbine manufacturing and PTO, the main focus after the completion of the campaign. The same unit will be deployed again in 2027, when the full TRL6 test will be done, covering the testing of the complete system, a prerequisite for further investments in a full-scale pilot which will go into 40-meter-deep water.

Wind Energy

Dominion's Coastal Virginia Offshore Wind Delivers First Power – The Maritime Executive

Coastal Virginia Offshore Wind, which is the largest commercial-scale offshore wind project in the United States, marked a key milestone on March 23 as it delivered its first power to the grid. It comes approximately two and a half years after construction began and after more than a decade of planning. Last month, the company told investors the project was over 70 percent complete and moving forward on schedule. It was delayed in December and January until the company received a preliminary injunction against the Trump administration's stop-work order. After resuming work, the first turbine installation was completed in January. Dominion has reported that all 176 monopiles

were installed between May 2024 and October 2025 and that, as of February, it was ahead of schedule on the installation of the transition pieces.

UK looks ahead to next chapter of extraordinary offshore wind story as plans for new leasing round in 2027 unveiled – The Crown Estate

A major new investment opportunity for the UK's offshore wind sector is set to open next year, as The Crown Estate announces a new process to accelerate clean energy growth and deliver jobs and economic benefits across the country. The seabed manager has begun a programme of market engagement ahead of an intended official launch of a new leasing round, Offshore Wind Leasing Round 6, in the first half of 2027. The Crown Estate believes this next leasing round could accommodate a capacity of around 6GW or more, predominantly in the North East of England and in water depths suitable for fixed-bottom wind, subject to stakeholder engagement and taking into account the National Energy System Operator's strategic plans for energy and for electricity networks.

With the wind at its back, Vineyard Wind crosses the finish line – The New Bedford Light

A crew of Americans and Europeans, assisted by a heavy lift crane and high-tech bolting tools, hoisted and secured the 186th and final blade at Vineyard Wind on Friday, closing the lengthy chapter on the project installation, and cementing the "Forever First" project as the second but now largest commercial-scale offshore wind farm to power American homes. Though South Fork Wind beat it to full power, Vineyard Wind was the first to go through some of the key regulatory processes. The project, which began with a lease auction in 2015, was marked by high-profile incidents and wound up not once, but twice, subject to a presidential administration that really doesn't like it. Its development spanned a whopping four presidential administrations, illustrating the industry's significant vulnerability to the swinging political pendulum that can upend anything from permitting to tax subsidies.

Germany to tender extra 12GW of onshore wind – reNEWS

Germany will tender an additional 12GW of onshore wind under its Climate Action Programme 2026. The federal government said the phased tenders correspond to around 2000 wind turbines and electricity production equivalent to 15-20 gas-fired power plants. It added that the additional wind capacity will help reduce natural gas and coal consumption by 2030 while avoiding 6.5 million tonnes of CO2 emissions. The government said the measure could save around €1 billion annually on natural gas imports based on last year's average wholesale price. It noted that 12GW of additional onshore wind by 2030 is expected to lower wholesale electricity prices by 0.6 cents per kilowatt-hour. The programme contains 67 measures aimed at saving more than 25 million tonnes of CO2 in 2030 and reducing dependence on fossil fuel imports.

Revolution Wind Begins Delivering Power to New England – Revolution Wind

Revolution Wind, LLC, a 50/50 joint venture between Global Infrastructure Partners' Skyborn Renewables and Ørsted, recently announced that the Revolution Wind project has started delivering power to New England's electric grid, strengthening the region's power supply and helping reduce costs for consumers. Revolution Wind, a 704 MW offshore wind energy project, is expected to supply enough electricity to power more than 350,000 homes and businesses. The project will deliver power under fixed-price, 20-year agreements with energy utilities in Rhode Island and Connecticut, providing price certainty and stability for consumers. Once the project reaches full commercial operations, analysis from the State of Connecticut's Department of Energy and Environmental Protection finds that Revolution Wind will save New England ratepayers as much as \$500 million per year in wholesale energy costs.