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[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!

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Announcements

Spanish Translations of WREN Materials

Working Together to Resolve Environmental Effects of Wind Energy ([WREN](#)) recently published Spanish translations of its Short Science Summaries on [The Mitigation Hierarchy](#), [Collision Risk Modeling – A Tool for Assessing Risks to Raptors at Wind Energy Facilities](#), and [The Likelihood of Bats Experiencing Barotrauma Near Moving Wind Turbine Blades](#).

Photo and Video Contest

The U.S. Department of Energy's (DOE) Water Power Technologies Office (WPTO) [recently launched](#) the [Make A Splash Photo and Video Contest](#) to capture photos and videos of water power that transport viewers and showcase the scope and potential of water power as a renewable energy. Cash prizes are available. Submissions due 17 November 2023.

Request for Information

Pacific Northwest National Laboratory is requesting information from developers, owners, and/or manufacturers of wave energy converters (WECs) capable of deployment and operation of their WEC to power offshore aquaculture operations. The [Request for Information](#) is now open through 31 August 2023.

BOEM Requests Comments

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking public comments on its draft Environmental Assessment (EA) for the potential issuance of an offshore wind research lease in the [Gulf of Maine](#) (due 21 August 2023), its intent to prepare an EA for three final Wind Energy Areas (WEAs) offshore [Delaware, Maryland, and Virginia](#) (due 31 August 2023), and its recently announced draft WEAs off the coast of [Oregon](#) (due 16 October 2023).

Wind Turbine Materials Recycling Prize

The U.S. DOE recently launched the [Wind Turbine Materials Recycling Prize](#), a \$5.1 million competition that will help develop a cost-effective recycling industry for fiber-reinforced composites and rare earth elements in wind turbines. Applications for Phase 1 are due 29 September 2023.

RWSC Science Plan

The Regional Wildlife Science Collaborative for Offshore Wind (RWSC) has released the [Draft Integrated Science Plan for Wildlife, Habitat, and Offshore Wind Energy in U.S. Atlantic Waters](#) for review and comment. The Plan describes recommendations for data collection, research, and coordination compiled by expert subcommittees. Comments are due 30 September 2023.

Calls for Abstracts

The Institute of Ocean Energy, Saga University (IOES) is hosting the [10th Program of International Platform on Ocean Energy for Young Researcher 2023](#) from 27 November to 2 December 2023 online and in Saga, Japan. Researchers under 36 years old are encouraged to apply to present by 18 August 2023. All travel fees will be paid by IOES.

The [Call for Abstracts](#) for the [104th American Meteorological Society \(AMS\) Annual Meeting](#) is now open through 24 August 2023. The event will take place from 28 January to 1 February 2024 in Baltimore, Maryland, U.S.

The [Call for Abstracts](#) for [Floating Wind Solutions \(FWS\) 2024](#) is open through 1 September 2023. FWS 2024 will take place 5-7 February 2024 in Houston, Texas, U.S.

The [Call for Abstracts](#) for the [WindEurope Annual Event 2024](#) is now open through 8 September 2023. The event will take place 20-22 March 2024 in Bilbao, Spain.

The Marine Alliance for Science and Technology for Scotland (MASTS) recently opened the [Call for Abstracts](#) for the [MASTS Annual Science Meeting](#) through 8 September 2023. The meeting will take place 5-7 December 2023 in Glasgow, Scotland.

The [Call for Abstracts](#) for the [Offshore Technology Conference \(OTC 2024\)](#) is open through 12 September 2023. OTC will take place 6-9 May 2024 in Houston, Texas, U.S. Abstracts are being considered for a dedicated three-day Offshore Wind Energy Thread.

The [Call for Abstracts](#) for the [Ocean Sciences Meeting \(OSM 2024\)](#) is open until 13 September 2023. OSM will take place 18-23 February 2024 in New Orleans, Louisiana, U.S. Abstracts are being considered for sessions on [Offshore Wind Energy Research, Development, Evaluation, & Policy](#), and [Making Waves with Communication: Approaches to Communication, Outreach, & Engagement for Ocean Sciences](#).

The [Call for Abstracts](#) for [OCEANS 2024 Singapore](#) are now open through 15 October 2023. OCEANS will take place in 14-18 April 2024 in Singapore.

Funding & Testing Opportunities

The Supergen Offshore Renewable Energy (ORE) Hub has launched its [4th Flexible Funding Call for Proposals](#) and is seeking proposals from eligible UK universities or other institutions to facilitate a program of coordinated UK-led ORE research projects. Expressions of interest are due 11 September 2023.

The U.S. Department of Commerce and National Oceanic and Atmospheric Administration (NOAA) [recently announced](#) the [Ocean-Based Climate Resilience Accelerators](#) program, which will foster public-private partnerships to help support small businesses that are developing sustainable technologies, including renewables. Applications are due 11 September 2023.

The U.S. DOE Water Power Technologies Office (WPTO) and the Minority-Serving Institutions STEM Research and Development Consortium have opened a [\\$1.2 million funding opportunity](#) to support promising, potentially high-impact water power research ideas from minority-serving colleges and universities. Concept papers are due 12 September 2023.

The National Science Foundation and U.S. DOE WPTO [recently announced](#) a special funding focus on new science and engineering proposals submitted to the [Engineering Research Initiation \(ERI\) solicitation](#) focused on marine energy and powering the blue economy. ERI supports eligible new researchers, educators, and innovators. Proposals are due 15 September 2023.

The European Commission is accepting proposals for the [Innovation Fund's Third Small-scale Call for Projects](#) through 19 September 2023. The call will provide grants to small-scale projects with a capital expenditure between €2.5 and €7.5 million in the areas of renewable energy, decarbonization, energy storage, and carbon capture, use, and storage.

Career Opportunities

Pacific Northwest National Laboratory (PNNL) is seeking a [Coastal Science Division Group Leader](#) to lead its Ocean Dynamics & Renewable Energy Group, which focuses on offshore renewable energy, climate modeling and resiliency, and social science research for resilient communities. Applications are due 31 August 2023.

Deltares USA is looking for a [Coastal Scientist/Hydrodynamic Modeler](#) to contribute to hydrodynamic, wave, sediment transport, and flood modeling studies for local, regional, and federal projects, including offshore wind energy. Applications are due 1 September 2023.

Aberdeen University is advertising a fully-funded [PhD in Biological Sciences](#) for eligible UK students on understanding marine ecosystems in the face of future variability and extreme events. Applications are due 3 September 2023.

PNNL is seeking a [Post Masters Research Associate - Marine Energy](#) to support a large data management system known as [PRIMRE](#), which contains multiple databases about marine energy development in the United States and internationally. Responsibilities will include adding and curating content, assisting in system architecture and UX/UI development, analyzing and visualizing data, and supporting public outreach. Applications are due 7 September 2023.

The University of Edinburgh is seeking a [Research Associate in Hydro-environmental Modelling for Tidal Stream Energy](#) to study the interactions of tidal stream turbine devices with the environment and inform co-design. Applications are due 11 September 2023.

Upcoming Events

Upcoming Webinars

The Portal and Repository for Information on Marine Renewable Energy ([PRIMRE](#)) team is hosting a webinar on 23 August 2023 from 10:00-11:00am MDT (4:00-5:00pm UTC). During the webinar, the [Modular Ocean Data Acquisition \(MODAQ\)](#) system, [Marine Energy Data Pipeline](#), and [Marine and Hydrokinetic ToolKit \(MHKiT\)](#) teams will provide a demonstration of how these data collection and processing tools can be utilized together collect, process, standardize, and analyze data. Register [here](#).

The New York State Energy Research and Development Authority's Offshore Wind team is hosting a webinar, "Research and Regulations for Marine Mammal Interactions with Offshore Wind", on 23 August 2023 from 1:00-2:00pm EDT (5:00-6:00pm UTC), as part of its [Learning from the Experts](#) series. Register [here](#).

The Regional Wildlife Science Collaborative for Offshore Wind (RWSC) and the Wildlife and Offshore Wind (WOW) project are hosting a public webinar on 24 August 2023 from 11:00am-12:30pm EDT (3:00-4:30pm UTC) to describe how they are working together to advance the RWSC Draft Science Plan and Project WOW goals. Register [here](#).

Renewables Grid Initiative is hosting a webinar, "[Bats and Wind Energy - Protecting bats around onshore wind farms](#)", on 24 August 2023 from 2:30-4:00pm CEST (12:30-2:00pm UTC). Speakers will discuss the issue of bat mortality around onshore wind farms and focus on the solutions to reduce the risk. Register [here](#).

Natural Environment Research Council (NERC) is hosting a webinar to launch a new funding opportunity, Innovation in Environmental Monitoring (IEM), on 30 August 2023 at 10:00am UTC. The webinar will outline the funding opportunity, facilitate networking and collaboration, and feature a question and answer period. Register [here](#).

Reuters Events is hosting a webinar, “California’s Leadership Journey in the Floating Wind American Dream”, on 30 August 2023 from 9:00-10:00am PDT (4:00-5:00pm UTC). During the webinar, experts from BOEM, U.S. DOE, Invenergy, and others will explore key factors that will influence the future of California’s floating wind projects. Register [here](#).

The University of Oslo, Department of Energy and Resources Law, and the Catholic University of Portugal, in collaboration with the NorthWind Research Centre, are hosting a webinar, “[Floating offshore wind permitting: comparative approach between Norway and Portugal](#)”, on 7 September 2023 from 10:30am-12:00pm CEST (8:30-11:00am UTC).

The U.S. Offshore Wind Synthesis of Environmental Effects Research ([SEER](#)) project is hosting a free, public webinar on [Environmental Considerations for Nearshore Ecosystems from Cable Landfall, Navigation, and Port Development for Offshore Wind Energy](#) on 13 September 2023 from 9:00-10:00am PDT (4:00-5:00pm UTC). Register [here](#).

Upcoming Conferences

The [15th European Wave and Tidal Energy Conference \(EWTEC 2023\)](#) will take place on 3-7 September 2023 in Bilbao, Spain. Register [here](#) by 20 August 2023.

RenewableUK and Scottish Renewables are hosting [Floating Offshore Wind 2023](#) on 4-5 October 23 in Aberdeen, Scotland. Register [here](#).

The University Marine Energy Research Community (UMERC) is hosting the [2nd Annual UMERC Conference](#) on 4-6 October 2023 in Durham, New Hampshire, U.S. Register [here](#).

Upcoming Workshops

OES-Environmental and PNNL are hosting a workshop, “[Environmental monitoring for marine energy: instrumentation for devices and arrays](#)”, on 6 September 2023 from 14:00-15:30 UTC as part of [EWTEC 2023](#) in Bilbao, Spain. This workshop will explore monitoring technologies and work towards recommendations for preferred sets of instruments and data systems that will support consenting decisions and post-installation monitoring programs, as well as guidance on the proper use of monitoring systems for tidal and wave installations when considering key environmental interactions. Registration not required.

PNNL and the Atlantic Marine Energy Center (AMEC) are hosting two Stakeholder Workshops on Environmental Effects of Marine Energy on [3 October 2023 from 8:30-12:30 EDT](#) and on [7 October 2023 from 12-4 EDT](#), before and after [UMERC](#). The workshops will discuss the effects of tidal energy on the marine environment. Anyone is welcome to attend the workshops, but online registration is encouraged. Additional information on the workshops will be available on the event pages soon, and shared via emails with those who register.

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

[Towards Estimating Probability of Fish–Turbine Encounter: Using Drifters Equipped with Acoustic Tags to Verify the Efficacy of an Array of Acoustic Receivers](#) – Sanderson et al. 2023

An area has been designated for demonstrating the utility of marine hydrokinetic turbines in Minas Passage, Bay of Fundy. Acoustic receivers that detect signals from acoustically tagged fish that pass through the tidal demonstration area and the detection efficiency of tag signals might be used to estimate the likelihood of fish encountering marine hydrokinetic turbines. The method requires that tagged fish passing through the development area will be reliably detected by a receiver array. The present research tests the reliability with which passing tags are detected by suspending tags beneath GPS-tracked drifters. Drifters carrying high residency Innovasea tags that transmitted every 2 s were usually detected by the receiver array even in fast currents during spring tides but pulse-position modulation tags were inadequate.

[Mapping Environmental Considerations for Marine Spatial Planning in Wales: Methodology](#) – Murray et al. 2023

In autumn 2021, Natural Resources Wales advisory was tasked by Welsh Government to progress a programme of Mapping of Environmental Considerations to support the spatial approach to marine planning. The aim of the work is to compile and present environmental evidence to support Welsh Government and others who are interested in exploring potential future opportunities for sustainable use and management of the Welsh marine area. The objective of this initial phase of work was to produce maps of environmental considerations for a range of sectors in relation to ecological features. The purpose of this report is to describe the methodology used to produce the maps and the datasets that underpin them. The potential degree of interaction of seven sectors of relevance to marine planning for Wales are considered.

[Effect of electromagnetic fields from renewable energy subsea power cables on righting reflex and physiological response of coastal invertebrates](#) – Chapman et al. 2023

Offshore renewables are expanding, yet more information is required to understand their possible impacts on the environment. Little is known about the effects of Electromagnetic Fields (EMF) from subsea power cables on marine life. This study simulated an EMF of 500 μ T, as modelled for an export cable over a rocky shore, where the industry standard cable burial would not be possible. Righting reflex, refractive index of haemolymph/coelomic fluid, and total haemocyte/coelomocyte counts were measured for four coastal invertebrates (*Asterias rubens*, *Echinus esculentus*, *Necora puber*, and *Littorina littorea*). No significant differences were found in either behavioural or physiological responses. This was the first study to investigate EMF exposure on righting reflex, and the first ever

EMF study on edible sea urchins and periwinkles, and only one of a couple for common starfish and velvet crabs.

Wind Energy

[Investigation of potential metal emissions from galvanic anodes in offshore wind farms into North Sea sediments](#) – Ebeling et al. 2023

To evaluate potential metal emissions from offshore wind farms (OWFs), 215 surface sediment samples from different German North Sea OWFs taken between 2016 and 2022 were analyzed for their mass fractions of metals and their isotopic composition of Sr. For the first time, this study provides large-scale elemental data from OWFs of the previously proposed galvanic anode tracers Cd, Pb, Zn, Ga and In. Results show that mass fractions of the legacy pollutants Cd, Pb and Zn were mostly within the known variability of North Sea sediments. At the current stage the analyzed Ga and In mass fractions as well as Ga/In ratios do not point towards an accumulation in sediments caused by galvanic anodes used in OWFs.

[First assessment on the influence of wind farms and high-voltage networks on ruddy-headed goose *Chloephaga rubidiceps* migration in Patagonia, Argentina](#) – Pedrana et al. 2023

Ruddy-headed goose *Chloephaga rubidiceps* has a migratory population that overwinters mainly in the Pampas region, Argentina, and breeds in Southern Patagonia. This population has decreased considerably, with less than 800 individuals remaining to date. We conducted the first assessment on the influence of environmental and anthropogenic-impact (wind farms and high-voltage networks) variables on ruddy-headed goose migration pathways across the Patagonian coast by applying kernel density analyses and statistical procedures. We used satellite tracking data obtained from six ruddy-headed geese during their migration pathways between 2015 and 2018. Five core distribution areas were identified during migration.

[Longfin squid reproductive behaviours and spawning withstand wind farm pile driving noise](#) – Jones et al. 2023

Pile driving noise is an intense, repetitive, far-reaching sound that is increasing in many coastal habitats as the offshore wind energy industry expands globally. There is concern for its impacts on keystone species and vital fisheries taxa such as squids. In controlled laboratory conditions, we investigated whether exposure to pile driving noise from offshore wind farm construction altered reproductive behaviours in the short-lived semelparous species *Doryteuthis pealeii*. Pile driving noise had no significant effects on the occurrence rates of agonistic behaviours, mate guarding, mating, and egg laying, compared with silent control trials. The results contrast starkly with behavioural response rates of the same squid species during feeding and shoaling.

News & Press Releases

Marine Energy

[Eco Wave Power is Officially Connected to Israeli Electrical Grid: The EWP-EDF One Station Supplies First Wave Energy to Country's Power Supply – Eco Wave Power](#)

Eco Wave Power recently announced that its station at the Port of Jaffa in Tel Aviv, EWP-EDF One, has officially connected to Israel's national electrical grid – making it the first wave energy project to deliver electricity to the country's power supply. Now, the EWP-EDF One project will proceed to full system calibration that is to be followed by a ceremonial “plugging in” event and demonstration in the coming months to commemorate this historic achievement. The EWP-EDF One power station we built in collaboration with and co-funding from EDF Renewables IL and the Israeli Energy Ministry. The Israeli Energy Ministry has recognized the Eco Wave Power technology as a “pioneering technology”. The EWP-EDF One power station has an installed capacity of 100 KW, enough energy to power approximately 100 homes at peak efficiency.

[Crown Estate Scotland launches market engagement survey for tidal and wave energy sectors – Crown Estate Scotland](#)

An in-depth survey of developers working in the tidal and wave energy sectors is to be carried out by Offshore Renewable Energy (ORE) Catapult on behalf of Crown Estate Scotland. Views and ideas will be sought from a range of developers who are working to produce and bring to market the next generation of wave and tidal technologies. This information will help inform Crown Estate Scotland's plans to support future leasing. This engagement survey will assess appetite amongst developers for future leasing opportunities; request individual project updates; seek to understand development plans and schedules; and, gather views on how improvements could be made to facilitate development of the tidal and wave sectors.

[QED Naval eyes tidal resources on UK South Coast with new base – Offshore Energy](#)

Scottish marine energy company QED Naval has established an operations base on the UK's South Coast with the aim of pursuing tidal resources in the area. QED, as part of its EU Interreg Tiger Project, established an operations base at Langstone Harbour, near Portsmouth, to tap into what it says are huge tidal resources in the Solent and the English Channel. According to the Scottish company, this sheltered area, with moorings near to shore, is ideal for commissioning and testing tidal systems. This investment in tidal energy and the south coast is said to enable QED to deploy its Subhub self-deploying, submersible, tidal platforms and Tocardo turbines, easily and at low cost. The Subhub tidal platform is designed to support the commissioning, testing, transportation and installation of tidal turbines to the seabed.

[Redevelopment Works at Pembroke Port Pave the Way for a Low Carbon Future – Pembroke Port](#)

Significant progress is being made to create a multi-purpose and future energy-ready port in Pembrokeshire that will create a bright and prosperous outlook for current and future generations. Physical works on the Swansea Bay City Deal and EU funded Pembroke Dock Marine project began in earnest last August after a breaking ground ceremony marked the start of the construction of a supersize slipway and new workboat pontoons at Pembroke Port. Since then the landscape of the site has changed dramatically. The slipway is being significantly widened to 68 metres and extended to offer greater flexibility for developers and marine businesses looking to test new marine energy devices, launch and recover vessels, and supply chain companies providing maintenance and engineering services to floating offshore wind device operators in the Celtic Sea.

Sustainable Marine Energy sinks into administration – Offshore Energy

The Edinburgh-based tidal energy company Sustainable Marine Energy has been placed into administration, appointing joint administrators of accountancy and business advisory firm Johnston Carmichael to lead the process. The marine renewables solution provider, which was founded in 2012, sought to deliver clean, reliable, and predictable tidal energy, mainly for island and coastal communities. Last year its Canadian subsidiary was successful in harnessing tidal currents in the country's Bay of Fundy, in Nova Scotia, using its innovative, floating in-stream tidal PLAT-I platform. However, in May this year its Canadian subsidiary was placed into an insolvency process due to permitting issues with Fisheries and Oceans Canada, resulting in the suspension of its operations in Canada. The Edinburgh-based company has also now been placed into administration.

Wind Energy

U.S. Department of Defense and CADEMO sign agreement to allow floating offshore wind project near Vandenberg launch sites – CADEMO

Setting a new path for California's floating offshore wind industry, the U.S. Department of Defense and Floventis Energy have reached agreement to enable operation of the state's first offshore wind power project in waters near Vandenberg Space Force Base in northern Santa Barbara County. The Mitigation Agreement creates a series of de-confliction protocols for CADEMO's spinning blades, whose tips will reach 870 feet high, to operate in busy airspace used by Vandenberg's space launches. It is the first such agreement for the U.S. military on the West Coast, and it sets a precedent for the offshore wind industry's planned expansion to other locations in the coming years and decades. CADEMO will include four 15 MW floating turbines in state waters off Vandenberg. It is expected to be operational in late 2027, years before deployment of the larger-scale wind projects expected farther offshore in the Morro Bay and Humboldt areas.

DemoSATH has achieved a key project milestone with the offshore installation – RWE

The DemoSATH project has achieved a significant milestone with the successful installation of its 2MW innovative floating wind platform demonstrator in open sea

waters. The operation, carried out by the Windstaller Alliance, used their anchor handling vessel, the Normand Sapphire, along with local tugboats, to tow DemoSATH from the construction site in the Port of Bilbao to the Biscay Marine Energy Platform (BiMEP) test site, located 11 miles away. Works in the BiMEP area are ongoing to finalize the connection of dynamic and static cable and pull-in to the DemoSATH's turret which will enable the energy export to the onshore electrical grid. DemoSATH is expected to generate the equivalent electricity needs of 2,000 Spanish households a year.

BOEM Identifies Draft Wind Energy Areas Offshore Oregon for Public Review and Comment – BOEM

As part of the Biden-Harris administration's goal of deploying 30 gigawatts of offshore wind energy capacity by 2030 and 15 gigawatts of floating offshore wind by 2035, the Bureau of Ocean Energy Management (BOEM) recently identified two draft Wind Energy Areas (WEAs) off the coast of Oregon and opened a 60-day public review and comment period on those WEAs. The draft WEAs cover approximately 219,568 acres offshore southern Oregon with their closest points ranging from approximately 18 – 32 miles off the coast. The draft WEAs announced recently would tap up to 2.6 GW of Oregon's potential. Public input from this new comment period will be considered before formally designating final WEAs off the coast of Oregon.

Underwater life surveys completed for two multi-gigawatt Baltic Sea offshore wind projects – Offshore Energy

OX2 and Finland's Ålandsbanken Fondbolag have completed underwater nature field surveys of two of its Noatun offshore wind projects near Åland in the Baltic Sea. The project team said it has used innovative methods to explore the underwater environment where the Noatun Norra (Noatun North) and Noatun Södra (Noatun South) offshore wind projects are planned. According to the developers, a key factor has been the use of environmental DNA (eDNA) to map fish populations more precisely. This analysis method has resulted in the discovery of several new species of fish that have not previously been registered by the authorities on Åland, including haddock, sand creeper, flounder, and four-bearded rockling, said OX2. The investigations above the water surface continue and are planned to be completed in autumn, OX2 added.

Vestas turbine sets world record – Renewables

Vestas's V236-15 MW prototype wind turbine has set a world record for the most power output by a single unit in a 24-hour period. The Danish manufacturer established the machine racked up 363MWh over the time frame. The prototype was installed at the offshore Osterild National test centre for large wind turbines in Western Jutland, Denmark in December 2022. Since then, the unit has been through an extensive test and verification programme. "Seven months into testing, we are excited to see the performance of the turbine at full power at continuously high wind," said Vestas senior director test & validation Jesper Uth. Vestas claims a single V236-15.0 turbine is capable of producing 80GWh a year depending on site-specific conditions.