



**21 July 2023**

[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**

### Wind Technologies Tool

Working Together to Resolve Environmental Effects of Wind Energy ([WREN](#)) is requesting information on new technologies to include in the [Wind Energy Monitoring and Mitigation Technologies Tool](#) on Tethys. The free, online tool serves as a catalog of available technologies used to assess and reduce potential wind-wildlife effects, including related research on their use and effectiveness. Please complete this [short survey](#) to contribute technologies for consideration!

### Wind Turbine Materials Recycling Prize

The U.S. Department of Energy (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. For more information, register for the [informational webinar](#) on 3 August 2023 at 1:00pm EDT (5:00pm UTC).

### BOEM Requests Comments

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking public comments on its intent to prepare an Environmental Impact Statement for the [Beacon Wind](#) project off Massachusetts (due 31 July 2023) and its draft Environmental Assessment for the potential issuance of an offshore wind [research lease](#) in the Gulf of Maine (due 21 August 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 open through 11 August 2023.

### ESA Regulation Revisions

The U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service are [seeking public comments](#) on proposed changes to improve and strengthen implementation of the Endangered Species Act (ESA) through 21 August 2023.

### Request for Expressions of Interest

The New Jersey Economic Development Authority, on behalf of the forthcoming Wind Institute for Innovation and Training, has released a [Request for Expressions of Interest](#) to identify partners to develop an Offshore Wind Innovation Center focused on climate smart modeling, environmental impact assessment, and more. Responses are due 13 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 American Geophysical Union (AGU) has opened the [Call for Abstracts](#) for the [AGU Fall Meeting 2023](#) through 2 August 2023. The meeting will take place on 11-15 December 2023 in San Francisco, CA, U.S. and online. Please consider submitting an abstract to the session on [Marine Energy to Power the Blue Economy](#) or [Renewable Energy: Wind](#).

The [Call for Abstracts](#) for the Argentine Meeting on Marine Energies (ENAEM) and 8<sup>th</sup> Center for Ocean Energy Research (COER) Wave Energy Workshop is now open through 13 August 2023. [ENAEM-COER 2023](#) will take place on 6-8 November 2023 in Buenos Aires, Argentina.

The [Call for Abstracts](#) for the [104<sup>th</sup> 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 [Ocean Sciences Meeting \(OSM 2024\)](#) is now open through 13 September 2023. OSM will take place 18-23 February 2023 in New Orleans, Louisiana, U.S. Please consider submitting an abstract to the session on [Offshore Wind Energy Research, Development, Evaluation, and Policy](#) or [Offshore Renewable Energy: Resource Characterization & Environmental Impacts](#).

### Funding & Testing Opportunities

California Ocean Protection Council has launched an [Offshore Wind Environmental Monitoring Guidance Request for Proposals](#) and is seeking applications to develop environmental monitoring guidance for offshore wind development in California by 31 July 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 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, decarbonisation, energy storage, and carbon capture, use, and storage.

### Career Opportunities

The Renewable Energy Environmental Advice Group in Marine Scotland Science is seeking a [Renewables Science Advice Lead](#) to provide advice within government on the potential environmental impacts of offshore wind energy. Applications are due 23 July 2023.

Pacific Northwest National Laboratory is seeking a [Post Masters Research Associate - Marine Technology Electrical Engineer](#) to join a multidisciplinary team developing and assessing technology for the marine environment, including marine energy and environmental monitoring systems. Applications are due 7 August 2023.

The UK Centre for Ecology & Hydrology is looking for a [Technical Coordinator](#) to join its Hydro-climate risks group to coordinate with technical experts in the translation of scientific monitoring requirements into reliable, low-maintenance automated sensor networks.

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## Upcoming Events

### Upcoming Webinars

Pacific Northwest National Laboratory is hosting a webinar, “[Got it all? Assessing the spatiotemporal variability of fish species in a tidal channel from water samples only](#)”, on 8 August 2023 at 5:00pm PST. During the webinar, researchers will discuss a novel approach called environmental DNA (eDNA) that provides a non-invasive, cost effective, and reliable method for monitoring the presence and distribution of fish in water bodies. Register [here](#).

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 three national lab developed 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](#).

### Upcoming Workshop

The U.S. DOE WPTO is hosting a [Water-Energy Nexus Strategy Workshop](#) on 25 July 2023 from 11:00am-5:00pm EDT (3:00-9:00pm UTC) to discuss the interdependent linkage of water and energy resources. Join to learn more about WPTO’s strategy development and to provide input on the objectives, questions, and directions being explored.

### Upcoming Conferences

The [Asia Pacific Offshore Wind & Green Hydrogen Summit 2023](#) will take place 29-31 August 2023 in Melbourne, Australia. Register [here](#).

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

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

## Upcoming Symposium

The International Network on Offshore Renewable Energy (INORE) is hosting the [24th INORE Symposium](#) on 7-11 November 2023 in Viana do Castelo, Portugal. Symposium activities, food, and lodging are free; attendees cover travel. Graduate students, early-stage researchers, and young professionals in offshore renewable energy can apply to attend through 31 July 2023.

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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**

#### **[Energy justice & coastal communities: The case for Meaningful Marine Renewable Energy Development](#) – Caballero et al. 2023**

Global climate change has prompted many national plans for rapid emissions reductions. For example, the United States recently committed to transitioning to 100% carbon-free electricity by 2035 and net-zero emissions economy-wide by 2050. Parallel to conversations surrounding emissions reductions is the call for energy justice, or the demand for more equitable distribution of energy-related burdens and benefits among communities. To date, energy justice has evolved as a mostly academic conversation, which may limit its utility to praxis. In response, we offer an interdisciplinary framework that aims to organize existing knowledge and lessons learned from energy development. Specifically, we developed the *Meaningful Marine Renewable Energy (MRE) Development Framework* and conducted a literature review using MRE as a case study.

#### **[Co-designing a multi-criteria approach to ranking hazards to and from Australia's emerging offshore blue economy](#) – Turschwell et al. 2023**

A multi-sectoral assessment of risks can support the management and investment decisions necessary for emerging blue economy industries to succeed. Traditional risk assessment methods will be challenged when applied to the complex socio-ecological systems that characterise offshore environments, and when data available to support management are lacking. Therefore, there is a need for assessments that account for multiple sectors. Here we describe the development of an efficient method for an integrated hazard analysis that is a precursor to full risk assessments. Our approach combines diverse disciplinary expertise, expert elicitation and multi-criteria analysis to rank hazards, so it encompasses all types of hazards including human-caused, natural and technological. We demonstrate our approach for two sectors that are predicted to grow rapidly in Australia: offshore aquaculture and marine renewable energy.

**[Introducing energy into marine environments: A lab-scale static magnetic field submarine cable simulation and its effects on sperm and larval development on a reef forming serpulid](#)**  
– Oliva et al. 2023

Non-chemical sources of anthropogenic environmental stress, such as artificial lights, noise and magnetic fields, are still an underestimate factor that may affect the wildlife. Marine environments are constantly subjected to these kinds of stress, especially nearby to urbanized coastal areas. In the present work, the effect of static magnetic fields, associated with submerged electric cables, was evaluated in gametes and early life stages of a serpulid polychaete, namely *Ficopomatus enigmaticus*. Specifically, biochemical/physiological impairments of sperm, fertilization rate inhibition and incorrect larval development were assessed. We evaluated differences between two selected magnetic field induction values (0.5 and 1 mT) along a range of exposure times (30 min–48 h), for a sound evaluation on this species.

## Wind Energy

**[Environmental DNA reveals spatial patterns of fish and plankton diversity at a floating offshore wind farm](#)** – Hestetun et al. 2023

In this study, we collected water eDNA from sampling stations at the first full scale floating offshore wind farm (OWF), the Hywind Pilot Park, east of Peterhead, UK, and a nearby reference area. We combined targeted droplet digital PCR (ddPCR) quantification of two commercially important species, Atlantic mackerel (*Scombrus scombrus*) and Atlantic herring (*Clupea harengus*), with metabarcoding of fish and plankton communities. The goal of this study was to assess the performance of eDNA data to characterize pelagic communities and its use for environmental monitoring. The metabarcoding recovered 26 fish species including both pelagic and demersal taxa. The plankton data were dominated by dinoflagellates (*Karenia*) and calanoid copepods. We found that both specific quantification of eDNA from mackerel and herring and eDNA metabarcoding of fish communities were able to reveal spatial patterns.

**[Sensitivity analysis of collision risk at wind turbines based on flight altitude of migratory waterbirds](#)** – Kamata et al. 2023

A rapid increase in wind power generation has led to bird collisions becoming a serious problem worldwide. Developing useful sensitivity maps to select low-risk sites for birds is an urgent issue. For migratory birds, such as geese and swans, that visit different habitats throughout their life cycle, it is important to conduct risk assessments that take into account their behavioural characteristics in each habitat. We first obtained location data for four species of geese and swans to identify their spring migratory routes within Japan (Bean Goose *Anser fabalis* and *Anser serrirostris*, Greater White-fronted Goose *Anser albifrons*, Tundra Swan *Cygnus columbianus bewickii* and Whooper Swan *Cygnus cygnus*). The sensitivity maps we generated showed that for all four species, most flight heights during spring were within the wind turbine range, suggesting that their risk of collision with wind turbines was greater along their migratory route.

## **Protected species considerations for ocean planning: A case study for offshore wind energy development in the U.S. Gulf of Mexico – Farmer et al. 2023**

Starting with a large area, such as BOEM’s initial 12.1-million-ha call area in federal waters of the U.S. Gulf of Mexico, provided substantial geographic scope for identifying suitable areas for eventual offshore wind lease sales that also aim to minimize conflict across multiple resources and uses. To support ocean planning for this large-scale activity, a generalized scoring system for protected species status and trends that facilitates relative comparison between species was developed. Spatial data for species listed under the U.S. Endangered Species Act or the Marine Mammal Protection Act were assembled. Species layers were scored based on species status and trend. The cumulative vulnerability for 23 species groups whose distributions overlap suitable areas proposed for eventual lease sales, termed wind energy areas by BOEM, was calculated.

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## **News & Press Releases**

### **Marine Energy**

#### **EU Innovation Fund backs two major ocean energy projects as part of €3.6B clean tech investment – Offshore Energy**

The European Commission has supported two major ocean energy projects – led by Floating Power Plant and Simply Blue Group’s Saoirse Wave Energy – which will take a share of €3.6 billion of investment provided for 41 large-scale clean tech projects through the EU Innovation Fund. Seaworthy is a mid-size prototype demonstration project aiming to demonstrate dispatchable renewable power supply through smart integration of wave energy converters, a wind turbine, and a full hydrogen system (electrolyzer, storage, and fuel cells) in a single semisubmersible platform. Simply Blue Group’s Saoirse wave energy project is a wave energy demonstration project at a site located off the Irish coast, aiming to prove the viability of wave energy converter technology. Saoirse will be the first full-scale wave energy conversion test and demonstration project in Ireland.

#### **UNIDO Supports Development of First OTEC Project in São Tomé and Príncipe – Global OTEC**

The United Nations Industrial Development Organisation (UNIDO) has taken a step forward in the development of the first floating Ocean Thermal Energy Conversion (OTEC) platform in São Tomé and Príncipe. The contract for an Environmental and Social Impact Assessment (ESIA) Scoping Report was signed at the beginning of July, with the Lisbon-based engineering consultancy AQUALOGUS Engenharia e Ambiente Lda. This will guide the final design and requirements of the ESIA, enabling any environmental and social impacts to be identified and addressed, securing the OTEC installation and operations. This is the first time a floating OTEC platform is being developed in a Small Island Developing States and Least Developed Country.

## **Wavepiston finalizing preps to demonstrate wave energy and desalination system offshore Canary Islands – Offshore Energy**

Danish company Wavepiston has made progress with its full-scale system that will soon be deployed offshore Canary Islands to demonstrate cost-efficient power production and desalination of seawater using wave energy. After many years of design, testing and plenty of iterations, Wavepiston's energy collectors are taking their full-scale form. The energy collectors were recently shipped to Gran Canaria from Galicia, where they were manufactured by Thune Eureka. According to Wavepiston, the energy collectors have been assembled, and will soon become the heart of its first full-scale installation. The progress has been made on other fronts in preparation for the deployment of the full-scale system. Earlier this summer, Wavepiston managed to install its pressure export pipe on the seabed and connect it to the Oceanic Platform of the Canary Islands (PLOCAN).

## **Successful installation of the new offshore cables: SEM-REV 2.0 is now operational offshore! – SEM-REV**

10 years after the installation of the export cable, the SEM-REV marine renewable energy test site has enjoyed further investment. The aim was to upgrade the site and pave the way for hosting future prototypes. Thanks to funding from the French State, the Pays de la Loire Region and Europe, which Centrale Nantes applied for as part of the "France 2030" programme, the site has been able to connect new prototypes since April. The offshore installation of cables and connectors on the submarine hub, the first of 3 operations that will enable the site to export up to 10MW to the grid, has therefore been successfully completed. The updating of the public high-voltage electricity distribution network by Enedis and the updating of the onshore delivery substation, located in the city of Le Croisic, will be completed in the coming months.

## **Orkney seeks contractor for removal and disposal of Pelamis wave energy device – Offshore Energy**

Orkney Islands Council has launched a tender for a contractor who would take ownership and dispose of the wave energy device known as Pelamis P2. The Pelamis device is a wave energy converter which was used to capture wave energy from the sea in the waters offshore Orkney. It was developed by the failed company Pelamis Wave Power, which filed for administration back in 2014. Later, its assets were sold, including the P2 device which was bought by Orkney Islands Council from the European Marine Energy Centre (EMEC) back in 2017 for the nominal sum of £1. Since, it has been laid up at moorings off Lyness Wharf, Hoy, in Orkney. Orkney Islands Council is now seeking a contractor to take ownership and remove the device as part of a tender valued at £150,000, which remains open for submission of proposals until August 18, 2023.

## **Wind Energy**



## **BOEM Completes Environmental Analysis for Proposed Wind Project Offshore Rhode Island – U.S. BOEM**

In support of the Biden-Harris administration’s goal of deploying 30 gigawatts of offshore wind energy capacity by 2030, BOEM has completed its environmental analysis of the proposed Revolution Wind Farm Project offshore Rhode Island, which BOEM estimates could power more than 300,000 homes with clean renewable energy. Revolution Wind, LLC proposes to construct an offshore wind energy project of up to 100 wind turbines, capable of generating up to 880 megawatts, located approximately 15 nautical miles southeast of Point Judith, Rhode Island. If approved, Revolution Wind would be the fourth commercial-scale offshore wind project located on the U.S. Outer Continental Shelf approved by the Biden-Harris administration. The Final EIS analyzes the potential environmental impacts of the activities laid out in Revolution Wind, LLC’s Construction and Operations Plan.

## **Ørsted completes industry-first nearshore artificial nesting structures – Ørsted**

Ørsted has commissioned three “industry-first” nearshore artificial nesting structures (ANS) specially designed to house kittiwake, a vulnerable species of seabird, off the East Suffolk coastline. The nearshore ANS have been installed as part of innovative plans to compensate for potential impacts of the Hornsea 3 windfarm on the species. Despite a lack of suitable natural nesting sites (i.e. cliffs) in Suffolk, Black-legged Kittiwake (*Rissa Tridactyla*) have colonised the area and populations are expanding, highlighting its ecological suitability. This makes East Suffolk one of the most likely places for artificial structures to be colonised quickly and for the compensation measures to have the highest chance of success. The structures are located approximately 1km offshore - with one close to the Minsmere Nature Reserve and the other two located near South Beach, Lowestoft.

## **Germany installed 1.6 GW new onshore wind in the first semester; rigorously implements EU permitting measures – WindEurope**

Onshore wind in Germany continues to recover. The country installed circa 1.6 GW of new onshore capacity in the first six months of 2023. The latest onshore wind auction awarded another 1.4 GW of new capacity. Germany is also leading on the implementation of the EU emergency measures, leaving no stone unturned to speed up renewables permitting. Germany have also exempted certain renewables projects from environmental impact assessments. The EU emergency measures allow this for wind energy projects located in dedicated areas which have been subject to a wider strategic environmental assessment. Project developers in these cases don’t have to do the site-specific environmental impact assessment. Instead they must take appropriate mitigation measures or pay into biodiversity protection programmes.

## **The Crown Estate increases its investment in ECOWind by £2 million – The Crown Estate**

The Crown Estate recently announced an increased investment of £2 million in ECOWind - a four-year research programme led by the Natural Environment Research Council (NERC) that brings together experts from science, policy and industry to understand how offshore wind affects ecosystems, species and habitats. The additional funds will be used to bring forward a fourth project, Benthic-Offshore Wind Interactions Evaluation (BOWIE). Through BOWIE, the University of Southampton will work with partners to investigate the impact of offshore wind expansion on seabed invertebrate and fish species, taking into consideration other pressures on the marine environment such as climate change and trawling. Three existing ECOWind projects, funded through a £7.5 million investment from NERC and The Crown Estate, are already working.

## **MARA Launch Marks Major Milestone for Offshore Energy Development – Government of Ireland**

The Government of Ireland officially launched the Maritime Area Regulatory Authority (MARA), marking a significant milestone in the State's stewardship of the maritime area including plans for renewable offshore energy development. The newly established authority will be responsible for regulating development and activity in Ireland's maritime area and its role will include assessing applications for Maritime Area Consents (MACs), which are required before developers of offshore wind and other projects in the maritime area can make a planning application. It will also be responsible for granting licences for certain activities in the maritime area. The establishment of MARA represents the beginning of phase two for Ireland's all-of-government approach to renewable offshore energy and will determine how we develop this valuable resource.