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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

R-Step Program

The U.S. Department of Energy (DOE) is launching the [Renewable Energy Siting through Technical Engagement and Planning \(R-STEP\) program](#) to support the creation of new, or the expansion of existing, state-based programs or initiatives that improve renewable energy planning and siting processes for local communities. Learn more [here](#).

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), as well as its intent to prepare an EA for three final Wind Energy Areas offshore [Delaware, Maryland, and Virginia](#) (due 31 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 Information

The U.S. Office of Science and Technology Policy and Ocean Policy Committee are requesting information for the development of a [National Strategy for a Sustainable Ocean Economy](#). The request seeks public input on what the goals and outcomes of the National Strategy should be, and how the Federal Government can best advance sustainable management of ocean, coastal, and Great Lakes resources and ecosystems of the United States. Responses due 28 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.

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 [Call for Abstracts](#) for the Argentine Meeting on Marine Energies (ENAEM) and 8th 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 [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 [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 [Offshore Renewable Energy: Resource Characterization & Environmental Impacts](#).

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 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 European Marine Energy Centre (EMEC) is looking for an [Environmental Specialist](#) to facilitate delivery of EMEC's environmental monitoring services for clients and research and development projects. Applications are due 14 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.

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

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 Renewable Energy Wildlife Research Fund is hosting a webinar on [Lesser-Prairie Chicken Response to Wind Energy](#) on 17 August at 2:00pm EDT (6:00pm UTC). The webinar will present a study investigating the potential effects of wind facilities on the lesser prairie-chicken over a 5-year period to provide data previously lacking to inform siting decisions. 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 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](#).

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 [3rd International Congress on Marine Energy CEMIE-Océano](#) will take place on 5-7 September 2023 in Puerto Morelos, Mexico. Register [here](#) by 4 August 2023.

The World Wind Energy Association is hosting the [21st World Wind Energy Conference and Exhibition \(WWEC2023\)](#) on 7-9 November 2023 in Hobart, Tasmania. Register [here](#).

Reuters Events is hosting the [Floating Wind USA 2023](#) Conference & Exhibition on 29-30 November 2023 in San Diego, California, 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 10 August 2023.

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

[Marine energy converters: Potential acoustic effects on fishes and aquatic invertebrates](#) – Popper et al. 2023

The potential effects of underwater anthropogenic sound and substrate vibration from offshore renewable energy development on the behavior, fitness, and health of aquatic

animals is a continuing concern with increased deployments and installation of these devices. Because marine energy converters (MECs) are not as well-known as other anthropogenic sources of potential disturbance, their general function and what is known about the sounds and substrate vibrations that they produce are introduced. While most previous studies focused on MECs and marine mammals, this paper considers the potential of MECs to cause acoustic disturbances affecting nearshore and tidal fishes and invertebrates. In particular, the focus is on particle motion and substrate vibration from MECs because these effects are the most likely to be detected by these animals.

Towards blue growth: Multi-use possibilities for the development of emerging sectors in the Brazilian sea – Weiss et al. 2023

The marine environment has been in the spotlight of economic development due to the growing demand for areas to promote activities associated with the concept of Blue Economy. This is the case of the renewable energy and aquaculture sectors, whose expansion towards offshore is determined by the increase global demand for energy and food, and by exceeding of the carrying capacity of coastal and terrestrial systems. In this context, the multi-use strategy can be an alternative to minimize conflicts between activities and impacts on the surrounding social-ecological environment. This contribution presents a preliminary approach to identify opportunities for individual exploitation and the possibilities of multi-use between wind energy, wave energy and aquaculture in Brazil's Exclusive Economic Zone.

Observing fish interactions with marine energy turbines using acoustic cameras – Cotter & Staines 2023

The risk of collision of fishes with marine energy turbines is not yet well understood, in part due to the challenges associated with observing fish at turbine sites. Given the limited number of turbine deployments to date, it is prudent to draw on the application of acoustic cameras to monitor fish in other scenarios. This article synthesizes their use for other fisheries applications to inform best practices and set realistic expectations for the results of acoustic camera monitoring at turbine sites. We discuss six key tasks performed with acoustic cameras: detecting objects, identifying objects as fish, counting fish, measuring fish, classifying fish taxonomically and analysing fish behavior. Specific challenges to monitoring fish at turbine sites are discussed.

Wind Energy

Nationwide Recommendations for Impact Pile Driving Sound Exposure Modeling and Sound Field Measurement for Offshore Wind Construction and Operations Plans – BOEM 2023

All proposed offshore wind energy projects described in a Construction and Operations Plan (COP) that are submitted to the Bureau of Ocean Energy Management (BOEM) for review must include assessments of potential environmental impacts resulting from project construction. Because underwater sounds generated from impact pile driving

during foundation installation as part of the construction of offshore energy projects can impact marine species near the project area, BOEM's environmental assessment is required to consider this impact producing factor. Specifically, two processes are typically performed: (1) noise impact and exposure assessments are conducted during the permitting phase, via modeling and analyses, and (2) ensounded areas are validated during the construction phase via sound field measurements.

Lesser prairie-chicken habitat selection and survival relative to a wind energy facility located in a fragmented landscape – LeBeau et al. 2023

The overlap of renewable wind energy with the range of lesser prairie-chickens *Tympanuchus pallidicinctus* raises concern of population declines and habitat loss. The current strategy of siting wind turbines in cultivated cropland within lesser prairie-chicken range has not been evaluated for its effectiveness at minimizing potential adverse impacts. We captured 60 female and 66 male lesser prairie-chickens from leks located along a gradient from wind turbines in southern Kansas, USA from 2017–2021. Over the study period, we collected lesser prairie-chicken location data and demographic information to evaluate resource selection, movement, and demography relative to environmental predictors and metrics associated with the wind energy facility.

Acoustic monitoring reveals spatiotemporal occurrence of Nathusius' pipistrelle at the southern North Sea during autumn migration – Lagerveld et al. 2023

Seasonal movements between the summer and winter areas are a widespread phenomenon in bats. So far, most information on the migration ecology of bats has been obtained by studies in terrestrial habitats, whereas scientific knowledge on migration over sea is scarce. We performed continuous ultrasonic acoustic monitoring at 13 locations in the southern North Sea during four consecutive years (2017–2020) and analysed the spatiotemporal occurrence of Nathusius' pipistrelle *Pipistrellus nathusii* during autumn migration in relation to weather parameters and lunar phase. Our analysis showed that the main autumn migration of Nathusius' pipistrelle at the southern North Sea occurs from mid-August until late October and most bats within the study area occur off the Noord Holland coast.

News & Press Releases

Marine Energy

Active Sonar Deployed on Tidal Energy Converter – Marine Energy Wales

Groundbreaking underwater active sonar technology has been deployed on the Magallanes Renovables ATIR tidal energy converter as part of Menter Môn's Marine Characterisation Research Project (MCRP). The MCRP is an innovative research and development project designed to support the safe implementation of tidal energy converters in the Morlais Demonstration Zone (MDZ), off the coast of Holy Island,

Anglesey. Using technical solutions being developed by the Sea Mammal Research Unit at the University of St Andrews, the active sonar has been mounted beneath the hull on the Magallanes ATIR tidal energy converter, currently deployed at the European Marine Energy Centre (EMEC) in Orkney.

U.S. Department of Energy Invests Nearly \$10 Million to Advance Marine Energy – DOE

The U.S. DOE recently announced nearly \$10 million for seven innovative projects that will accelerate development and testing of marine energy technologies. Marine energy resources—such as wave, tidal, and ocean and river currents—are abundant, predictable, and complement other renewable energy sources. These investments advance research on wave-powered technology for use in seawater desalination and support a feasibility study for a potential ocean current test facility. The seven projects announced today are part of DOE’s Water Power Technologies Office’s Powering the Blue Economy™ Initiative, and six advance solutions that could provide low-cost, emission-free, and drought-resistant drinking water in disaster-relief situations and to small communities.

Thailand’s State energy major invests to join collaborative wave power subsea project – Ocean Energy Europe

Thailand’s state energy company, PTTEP (PTT Exploration and Production), has joined the Renewables for Subsea Power (RSP) collaborative project which is intended to prove the concept of powering subsea equipment with wave power and intelligent subsea energy storage. The £2million demonstrator initiative, which has taken to the seas in the north of Scotland, has connected the Blue X wave energy converter – built by Edinburgh company Mocean Energy – with a Halo underwater battery developed by Aberdeen intelligent energy management specialists Verlume. The fully operational project, which is in situ off the coast of Orkney, aims to show how green technologies can be combined to provide reliable low carbon power and communications to subsea equipment, offering a cost-effective alternative to umbilical cables, which are carbon intensive with long lead times to procure and install.

The City of Fort Bragg and Oneka Technologies Partner to Deploy the First Wave-Powered Desalination Demonstration Site in California – Oneka Technologies

Drought in California has occurred in varying degrees throughout history. However, in recent years, the impacts of severe drought conditions on the City of Fort Bragg’s water supply left the community vulnerable during summer months. Given the combination of the water needs of the city, the Blue Economy Initiative, and the potential of the California coast for wave-powered desalination with its 840 miles of coastline and powerful, year-round waves, it was a natural fit for the City of Fort Bragg to partner with Oneka Technologies to deploy California’s first wave-powered desalination project. For the pilot project, an Iceberg-class unit, the 9th generation of this technology which has been refined over 7 years in the ocean environment, will be deployed along the Fort Bragg coast.

Visible Work on OSU-Led Wave Energy Testing Facility to Begin – Renewable Energy Magazine

The next step in Oregon State University's construction of a wave energy testing facility off the Oregon Coast is likely to be visible to residents and visitors to the area this month. Crews will work on shore and from a vessel anchored about a mile offshore from Driftwood Beach State Recreation Site south of Newport. The work is part of the construction of PacWave South, which will be the first pre-permitted, utility-scale, grid-connected wave energy test site in the United States. Workers aboard a 265-foot vessel anchored just off the coast and additional crews at the recreation site will inspect and prepare cable conduits for next summer's planned installation of power and data cables. When completed, PacWave will offer wave energy developers the opportunity to try different technologies for harnessing the power of ocean waves and transmitting that energy to the local electrical grid.

Wind Energy

BOEM Finalizes Wind Energy Areas in the Central Atlantic: Areas have potential to support 4–8 gigawatts of clean renewable energy – BOEM

As part of the Biden-Harris administration's goal of deploying 30 gigawatts (GW) of offshore wind energy capacity by 2030, BOEM recently announced three final Wind Energy Areas (WEAs) offshore Delaware, Maryland, and Virginia, which were developed following extensive engagement and feedback from states, Tribes, local residents, ocean users, federal government partners, and other members of the public. If fully developed, the final WEAs could support between four and eight gigawatts of energy production. The first WEA (A-2) is 101,767 acres and located 26 nautical miles (nm) from Delaware Bay. The second WEA (B-1) is 78,285 acres and about 23.5 nm offshore Ocean City, Md. The third WEA (C-1) is 176,506 acres and located about 35 nm from the mouth of the Chesapeake Bay, offshore Virginia.

The Crown Estate invests a further £9m in new research to drive nature-positive offshore wind development – The Crown Estate

The Crown Estate is partnering with a range of UK-wide expert bodies to launch four significant research projects that will support nature recovery as part of a continued drive to enable the coexistence of offshore wind farms with a thriving marine environment. Subject to contracts, The Crown Estate will provide a total investment of £9 million through the Offshore Wind Evidence and Change programme (OWEC), which it co-leads alongside the Department of Energy Security and Net Zero and the Department for Environment, Food and Rural Affairs. The projects aim to fill critical evidence gaps around how seabirds interact with offshore windfarms and how strategic compensation measures could support seabird colonies, habitat restoration and creation.

Avangrid Announces Installation Completion of the First Offshore Substation in the U.S. – Avangrid

Avangrid, a leading sustainable energy company and part of the Iberdrola Group, announced today the successful installation of the offshore substation at its Vineyard Wind 1 project, the first large-scale offshore wind farm in the U.S., currently under construction off the coast of Massachusetts. An offshore substation is a critical component of an offshore wind farm, designed and built to collect and export the electricity generated by the wind turbine generators. It serves as an intermediary platform between the wind turbine generators in the offshore lease area and the onshore power grid. Vineyard Wind 1 is expected to deliver first power before the end of this year and, once completed, the facility will generate 806 MW of clean, renewable energy to power more than 400,000 homes and businesses in Massachusetts.

First campaign to install turbines at world’s largest offshore wind farm is underway – Dogger Bank Wind Farm

The campaign to install the first of 277 turbines at the world’s largest offshore wind farm is underway, marking a major advance in the industry and speeding up the transition to a cleaner, more secure energy system. The 260m tall turbines – which are almost twice the height of the London Eye – will be installed c.80 miles off the coast of Yorkshire using a specialist vessel, the ‘Voltaire’, with a lifting capacity of 3,200 tonnes, the largest of its kind in the world. Work to install the first 260m turbine is expected to begin at the weekend. The scale of Dogger Bank Wind Farm is immense, occupying an area almost as large as Greater London, on seabed that once formed a land bridge between the UK and Europe. When fully complete it will have an installed capacity of 3.6GW of renewable electricity – more than two and a half times the size of the next largest offshore wind farm.

Governor Mills Signs Bill to Create Jobs, Advance Clean Energy and Fight Climate Change Through Responsible Offshore Wind – State of Maine Governor’s Office

Governor Janet Mills today signed into law LD 1895, legislation to advance offshore wind in Maine by procuring up to 3,000 MW of offshore wind energy, allowing for critical port development, creating opportunity for all Maine workers and businesses in the emerging offshore wind industry, and protecting critical lobstering areas from development. This legislation marks a major milestone in Maine’s efforts to pursue and benefit from offshore wind’s potential to create good-paying jobs, generate substantial economic activity, stabilize energy costs by reducing reliance on electricity generated by fossil fuels, and mitigate the impacts of climate change on Maine’s people and environment.