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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

[Powering the Blue Economy: Power at Sea Prize](#)

The U.S. Department of Energy's (DOE) Water Power Technologies Office (WPTO) recently launched the [Powering the Blue Economy: Power at Sea Prize](#), which will award up to \$1.7 million to competitors to advance technologies that use marine energy to power ocean-based activities. Submissions for the Concept Phase are due 26 July 2024.

[Marine Energy Graduate Student Research Program](#)

The U.S. DOE's WPTO and the Oak Ridge Institute for Science and Education (ORISE) has opened applications for the [2024 Marine Energy Graduate Student Research Program](#), which supports graduate students working on marine energy by providing access to expertise, resources, and capabilities available at DOE offices, national laboratories, government and industry partners, and other approved facilities. Applications are due 1 December 2023.

[BOEM Seeking Public Input](#)

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking comments on the [Notice of Intent](#) to prepare an Environmental Assessment for additional site assessment activities for Beacon Wind (due 7 December 2023). BOEM is also accepting environmental study ideas for its [Fiscal Year 2025-2026 Studies Development Plan](#) (due 7 December 2023).

Calls for Abstracts

The [Call for Abstracts](#) for the [Environmental Interactions of Marine Renewables Congress 2024 \(EIMR 2024\)](#) is now open through 24 November 2023. EIMR 2024 will take place on 15-19 April 2024 in Orkney, Scotland.

The [Pan-American Marine Energy Conference \(PAMEC\) 2024](#) is still [accepting abstract submissions for posters](#) until 1 December 2023. PAMEC will take place 22-24 January 2024 in Barranquilla, Colombia.

The [Call for Abstracts](#) for the [International Conference on Ocean Energy \(ICOE 2024\)](#) is now open through 5 March 2024. ICOE 2024 will take place 17-19 September 2024 in Melbourne, Australia.

The [Call for Abstracts](#) for the [Asian Offshore Wind, Wave and Tidal Energy Conference \(AWTEC 2024\)](#) is now open through 20 March 2024. AWTEC will take place 20-24 October 2024 in Busan, Korea.

Funding & Testing Opportunities

Menter Môn is [seeking partners or suppliers](#) to help develop and commercialize an environmental monitoring system to enable deployment of tidal turbines at the Morlas tidal stream site. The deadline to apply to the tender is 24 November 2023.

The State of Maine has released a Request for Proposals, “[Research to Inform Responsible Floating Offshore Wind Development in the Gulf of Maine](#)”, and is seeking consultants to address high priority research needs identified by the Maine Offshore Wind Research Consortium. Proposals are due 5 December 2023.

RWE has launched its first global [Floating Wind Co-use Competition](#), which is looking for innovative and sustainable solutions to promote co-existence with other sea users and biodiversity enhancement. Applications are due 31 December 2023.

France’s National Offshore Wind Observatory has launched a [Call for Research Projects](#) to develop new knowledge on the marine environment and the impacts of offshore wind power on the environment. Applications for the second round are due 31 December 2023.

The U.S. DOE recently announced up to \$10 million in funding for the [Inspiring Generations of New Innovators to Impact Technologies in Energy 2024 \(IGNIITE 2024\)](#) program, led by the Advanced Research Projects Agency-Energy (ARPA-E). The new program will support early-career scientists and engineers seeking to develop impactful new energy technologies. Concept papers are due 5 January 2024.

The National Offshore Wind Research & Development Consortium (NOWRDC) has partnered with Innovate UK to launch its [Innovations in Offshore Wind – Solicitation 3.0](#), which includes a

challenge area on technologies that reduce offshore wind development's impacts on the marine biosphere. Proposals must contain both a US-led and UK-led scope and are due 10 January 2024.

Career Opportunities

The Environmental Research Institute is advertising for a [funded PhD studentship](#) on “Validating next-generation biophysical and metocean monitoring techniques for offshore renewable energy”. Applications are due 30 November 2023.

Bangor University's School of Ocean Sciences is seeking a [Teaching & Research Lecturer in Marine Top-Predator Ecology and Conservation](#) to teach undergraduate and graduate levels and develop their own programme of research. Applications are due 12 December 2023.

Upcoming Events

Upcoming Webinars

The Portal and Repository for Information on Marine Renewable Energy ([PRIMRE](#)) team is hosting a webinar, “[Introducing Telesto: PRIMRE's Knowledge Hub for Marine Energy Development Resources and Guidance](#)”, on 28 November 2023 from 10:00-11:00am MST (5:00-6:00pm UTC). The new and improved version of [Telesto](#) is home to open-source wiki pages, structured databases, and tools that provide information about the development life cycle of marine energy. Register [here](#).

ETIP Ocean, the European Technology & Innovation Platform for Ocean Energy, is hosting a webinar, “[Best practices for local community engagement](#)”, on 6 December 2023 at 3:00pm CET (2:00pm UTC). Register [here](#).

Marine Renewables Canada is hosting the second webinar in its [Ask an Expert webinar series](#), “Environmental Impacts & Effects of Offshore Wind”, on 14 December 2023 from 1:00-2:00pm EST (9:00-10:00pm UTC). Register [here](#).

Upcoming Conferences

The American Geophysical Union (AGU) is hosting the [AGU Fall Meeting 2023](#) on 11-15 December 2023 in San Francisco, California, U.S. and online. Register [here](#).

The Pacific Ocean Energy Trust is hosting the [Northwest Offshore Wind Conference 2024](#) on 30-31 January 2024 in Portland, Oregon, U.S. Early bird registration is available through 31 December 2023.

Upcoming Workshops

In addition to the PAMEC 2024 Conference Program, PAMEC in partnership with key partners, is hosting several workshops prior to the conference. Pacific Northwest National Laboratory is

hosting an [Ocean Thermal Energy Conversion \(OTEC\) Workshop](#) on 19 January to review OTEC technologies, discuss potential environmental effects, and examine additional uses of deep cold water. Register [here](#).

The PRIMRE team is also hosting a workshop on [Marine Energy Data Organized – PAMEC Workshop on PRIMRE and International Data Sharing](#) on 20 January to present on the resources available within PRIMRE and discuss opportunities for international databases to connect to the system. Register [here](#).

Fundy Ocean Research Centre for Energy (FORCE) is also hosting a workshop on [Monitoring for Interactions Between Marine Animals and MRE Devices](#) on 20 January to present on environmental monitoring around wave and tidal energy devices. Register [here](#).

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

[A Probabilistic Methodology for Determining Collision Risk of Marine Animals with Tidal Energy Turbines](#) – Copping et al. 2023

Commercial development of tidal stream energy is hampered by technical and financial challenges, and impeded by uncertainty about potential environmental effects that drive environmental risk assessments and permitting (consenting) processes. The effect of greatest concern for operational tidal stream energy devices is the potential for marine animals to collide with turbine blades, resulting in injury or death. This paper relies on the framework of stressors and receptors that is widely used in marine energy studies and outlines a stepwise probabilistic methodology that applies existing knowledge to further elucidate the risk to marine animals from operational tidal turbines. A case study using striped bass from the Bay of Fundy, Canada, accompanies the methodology, to partially demonstrate its application.

[Red rock crab \(*Cancer productus*\) movement is not influenced by electromagnetic fields produced by a submarine power transmission cable](#) – Williams et al. 2023

Marine renewable energy (MRE) devices, such as ones that harness offshore wind and wave energy, are an effective supplement to traditional energy sources and can support the energy grid while combating climate change. As MRE development increases pace, it is important to anticipate impacts of these infrastructure projects on the marine environment. One potential impact is a localized change in electromagnetic fields (EMF) produced by energized submarine transmission cables. Our primary objective was to verify the response of red rock crabs in the presence of energized cables similar to those

associated with existing MRE installations while also controlling for environmental conditions.

[Vulnerability Index to Scale Effects of Offshore Renewable Energy on Marine Mammals and Sea Turtles Off the U.S. West Coast \(VIMMS\) – Southall et al. 2023](#)

The objective here was to apply and adapt aspects of earlier risk assessment methods used to consider impacts of seismic surveys and large piling-based wind farms to evaluate the relative vulnerability of many protected marine species on the U.S. West Coast to disturbance associated with all forms of offshore alternative energy development. The fundamental approach retains the species-specific, spatially- and temporally explicit nature of the earlier risk assessment but focuses, as an initial step, on just the species-specific vulnerability to the kinds of anticipated disturbances based on a structured host of factors. Subsequent analyses are needed, as discussed, to evaluate specific and finer spatial and temporal aspects of exposure magnitude and severity.

Wind Energy

[Fish distribution in three dimensions around the Block Island Wind Farm as observed with conventional and volumetric echosounders – Jech et al. 2023](#)

The Block Island Wind Farm is a five-turbine, 30-MW wind array located about 6 km off the coast of Rhode Island and has been in operation since 2016. We conducted a 4-day acoustical and biological survey of the area during daylight hours to gain insight on the spatial distribution of fish species in and around the turbines. We utilized a hull-mounted, downward-looking Simrad 38-/200-kHz ES70 and a pole-mounted iXblue SeapiX steerable Mills Cross, 150-kHz, 1.6° resolution multibeam echosounder oriented downward to map the two- and three-dimensional distributions using spiral and straight-line transect patterns. We collected fish by using hook and line to verify the sources of acoustic backscatter and to measure length, sex, and diet.

[Wind farms and Griffon Vultures: Evidence that under certain conditions history is not-always turbulent – Farfan et al. 2023](#)

We show a case study in which we researched during the nestling rearing period the long-term effects of a wind farm located in southern Spain on the abundance, displacement, and mortality of the Griffon Vulture, a raptor considered very sensitive to collisions. After 13 years of operation, observation and abundance rates increased significantly during the study period. Griffon Vultures avoided flights between wind turbines by flying at the ends of the rows or through the existing corridor between alignments of wind turbines. Our results are in line with the theory that birds may become habituated to the presence of wind farms suggesting that, under certain conditions, it could be possible to reconcile the presence of wind farms with raptor conservation.

[Avoidance of offshore wind farms by Sandwich Terns in the North Sea increases with turbine density – van Bemmelen et al. 2023](#)

The expanding use of wind farms as a source of renewable energy can impact bird populations due to collisions and other factors. Globally, seabirds are one of the avian taxonomic groups most threatened by anthropogenic disturbance; adequately assessing the potential impact of offshore wind farms (OWFs) is important for developing strategies to avoid or minimize harm to their populations. We estimated avoidance rates of OWFs—the degree to which birds show reduced utilization of OWF areas—by Sandwich Terns (*Thalasseus sandvicensis*) at 2 breeding colonies in western Europe: Scolt Head (United Kingdom) and De Putten (the Netherlands). The foraging ranges of birds from each colony overlapped with multiple OWFs.

News & Press Releases

Marine Energy

[Water Power Technologies Office Announces Nearly \\$1.8 Million for Continuing Marine Energy Projects at U.S. National Laboratories](#) – DOE WPTO

The U.S. DOE's WPTO recently announced nearly \$1.8 million for nine projects to further marine energy research and development at DOE's national laboratories. These projects will advance marine energy technologies and their roles in achieving both national and local clean energy goals. Researchers at the National Renewable Energy Laboratory (NREL), Oak Ridge National Laboratory (ORNL), Pacific Northwest National Laboratory (PNNL), and Sandia National Laboratories (Sandia) will lead these projects. The projects announced are "Saplings" funded under WPTO's Seedlings and Saplings program to encourage and support new and innovative research ideas at DOE's national laboratories. Most started as "Seedlings" and received up to \$100,000. They have now been selected to become "Saplings" and will receive additional funding of \$80,000 to \$500,000.

[EMEC launches restructuring as it awaits for more favorable tides](#) – Offshore Energy

The European Marine Energy Centre (EMEC), the world's first and leading facility for demonstrating and testing wave and tidal energy converters, has started consultations with its staff to restructure the company. According to Neil Kermode, the managing director of the Orkney-based test center, the management is now looking to reshape the organization for a change in funding streams, which would result in some redundancies. "EMEC is a not-for-profit R&D organization and has adapted to changing market and funding landscapes several times over the last 20 years. More recently, we have participated in a wide range of European Union (EU) programs enabling us to build considerable capacity within the company to support innovation projects. Unfortunately, we no longer have access to some of these EU funding streams and many of those projects are coming to an end.

HydroWing unveils plans for its next generation tidal energy project in Wales – HyrdoWing

HydroWing is gearing up for deployment of its next generation tidal energy technology, following the recent announcement that HydroWing has been awarded a contract for a 10MW tidal stream energy project in Wales. HydroWing was the largest tidal stream project in Wales to be successful in the UK government's latest Contracts for Difference round. The project will be located at the Morlais tidal energy site in Anglesey, which is managed by the social enterprise Menter Môn. The Morlais site is the UK's largest consented tidal energy scheme. HydroWing is now starting intensive work on delivering the project, including engaging with local stakeholders and supply chain companies while also establishing a presence in Anglesey. A comprehensive research project has already been conducted in partnership with Bangor University to assess the velocity of local tide currents.

After OTEC and tidal, Shell sets sights on wave energy as well – Offshore Energy

Danish wave energy company Wavepiston has partnered up with Shell Technology – Marine Renewable Program to identify opportunities and potential avenues for collaboration on ocean energy developments. The move follows the signing of the contract between the U.S.-based marine energy technology developer ORPC and Shell Technology – Marine Renewable Program for the purchase of two next-generation Modular RivGen devices, signed in October 2023. In addition, Shell Technology – Marine Renewable Program last week signed a deal with Makai Ocean Engineering to further develop and test potentially transformative proprietary technologies that advance the engineering and economic viability of an offshore ocean thermal energy conversion (OTEC) system.

Jacobs to Advance Development of New Water Tidal Turbine Technology – Jacobs

A Jacobs-led consortium of industry and academic organizations has been awarded funding from the U.K. government to help develop a new type of water turbine designed to improve the viability and potential of U.K. tidal range power projects. The \$1 million U.K. Research and Innovation fund SMART grant will support Jacobs' industrial research with Severn Estuary Tidal Bar Limited, in collaboration with Cardiff University, Liverpool John Moores University and the Tidal Range Alliance (part of the British Hydro Association BHA). Combined with further investment from the consortium, the grant will help progress optimization and testing of the Very Low Head turbine (VLHT). It will fund a program of computational fluid dynamics modeling, a large-scale test rig and the manufacture of a fully functioning prototype turbine at Jacobs' Technology & Innovation Center in Warrington, U.K.

AW-Energy and partners appoint ESIA consultant for Namibia's wave energy pilot – Offshore Energy

Kaoko Green Energy Solutions and AW-Energy have appointed I.N.K Enviro Consultants to conduct the environmental and social impact assessment (ESIA) for the WaveRoller wave energy pilot project. The news follows the signing of memorandum of understanding (MoU) between Kaoko Green Energy Solutions and Finnish company AW-Energy, to extract renewable energy from wave energy from the 1,300km long coastline of Namibia. The ESIA coincides with the environmental impact assessment (EIA) for the subdivision of a 20-hectare land, a mere kilometer from the shoreline where the WaveRoller units are slated to be deployed. The cost projections for the pilot project stand close to €1 million (N\$20 million), covering the deployment of five WaveRoller-X devices.

Wind Energy

[Biden-Harris Administration Approves Sixth Offshore Wind Project](#) – U.S. Department of Interior

The Biden-Harris administration recently announced its approval of the Empire Wind offshore wind project – the sixth approval of a commercial-scale offshore wind energy project under President Biden’s leadership. The announcement supports the Administration’s goal of deploying 30 gigawatts of offshore wind energy capacity by 2030. Empire Wind US LLC proposes to develop two offshore wind facilities, known as Empire Wind 1 and Empire Wind 2. The lease area is located about 12 nautical miles (nm) south of Long Island, N.Y., and about 16.9 nm east of Long Branch, N.J. Together these projects would have up to 147 wind turbines with a total capacity of 2,076 megawatts of clean, renewable energy that BOEM estimates could power more than 700,000 homes each year. The projects would support over 830 jobs each year during the construction phase and about 300 jobs annually during the operations phase.

[Boost for offshore wind as government raises maximum prices in renewable energy auction](#) – UK Government

The government has increased the maximum price for offshore wind projects in its flagship renewables scheme to further cement the UK as a world leader in clean energy. Following an extensive review of the latest evidence, including the impact of global events on supply chains, the government has raised the maximum price offshore wind and other renewables projects can receive in the next Contracts for Difference (CfD) auction to ensure it is performing effectively. The government is also increasing maximum bid prices for other technologies, offering certainty for developers, and keeping the UK at the cutting edge of all renewables. These include geothermal by 32% (from £119/MWh to £157/MWh), solar by 30% (from £47/MWh to £61/MWh), and tidal by 29% (from £202/MWh to £261/MWh).

[Revolution Wind Receives Final Approval from U.S. Department of the Interior](#) – Revolution Wind

Revolution Wind has received approval of the project's Construction and Operations Plan (COP) from the U.S. Department of the Interior's BOEM, which is the final decision needed from the agency to move the project toward the start of offshore construction. The first utility-scale offshore wind farm serving Rhode Island and Connecticut, Revolution Wind will deliver 400 megawatts of clean, affordable offshore wind power to Rhode Island and 304 megawatts of the same to Connecticut, powering more than 350,000 homes across the two states and helping the states reach their ambitious climate goals. Revolution Wind will create thousands of direct, indirect, and induced jobs, as well as permanent operations and maintenance jobs across both states. Roughly 100 local union workers are already involved in the project's onshore transmission system construction.

North Seas conference in The Hague: from national goals to joint action for offshore wind energy – European Commission

Nine North Seas countries have taken an important step forward in the Hague today to progress the offshore wind energy agenda. At the annual North Seas conference, 8 EU countries, Norway and the European Commission have agreed a shared 'Action Agenda' aimed at moving towards an integrated energy system by 2050, a sustainable and resilient supply chain in Europe, and a better balance between energy and nature in the North Seas. As co-chair, the Netherlands was keen to translate national ambitions to European actions. As part of this approach, a collective North Seas Energy Cooperation (NSEC) tender planning is launched. The tender planning translates NSEC countries' broad ambitions into tangible progress, auctioning around 15 GW every year, awarding almost 100 GW between this year and 2030.

New York's First Offshore Wind Project Marks Historic Milestone in Offshore Construction – South Fork Wind

Governor Kathy Hochul recently announced the completed installation of the first offshore wind turbine for South Fork Wind, a historic milestone for New York's offshore wind development and what will be the first completed utility-scale wind farm in the United States in federal waters. Once completed, the 130-megawatt offshore wind farm will address a growing reliability challenge for Long Island's electrical grid, while also generating enough renewable energy to power approximately 70,000 Long Island homes, eliminating up to six million tons of carbon emissions, or the equivalent of taking 60,000 cars off the road annually over a 25-year period.

Octopus Energy launches landmark £3bn offshore wind fund with Tokyo Gas – Octopus Energy

Octopus Energy's generation arm - which manages £6 billion of green energy projects - recently launched its first ever offshore wind fund. The fund, set up with a £190 million cornerstone investment from Japanese energy giant Tokyo Gas, plans to invest £3 billion in offshore wind globally by 2030. Projects will focus on Europe to reduce fossil fuels reliance and boost energy security. The Octopus Energy Offshore Wind fund will invest in development, construction, and operational stage offshore wind farms, as well as

companies creating new offshore wind. This is the next step in Octopus' plans to unleash £15 billion into this sector and unlock this green energy for millions of homes globally by 2030.