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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

[New Tethys Story](#)

[PURE WIND: Impact of sound on marine ecosystems from offshore wind energy generation](#) by Bob Rumes (Royal Belgian Institute of Natural Sciences) & Nicole Todd (University College Cork)

The PURE WIND project aims to improve understanding of underwater noise from operational offshore wind farms and how this noise impacts marine life, and to provide policy-relevant tools for regulation and mitigation of those impacts. [Learn more in the latest Tethys Story here.](#)

[New Regulatory Frameworks Page on Tethys](#)

As part of this effort, the PURE WIND project has created a [Regulatory Frameworks for Offshore Wind Energy and Underwater Noise in Europe](#) page on Tethys that provides an overview of country-specific legislation for the consenting and management of offshore wind farms for those countries involved in the project, along with some European Union directives.

[New ECO Wind Fact Sheet](#)

The Enabling Coexistence Options for Wind Energy and Wildlife ([ECO Wind](#)) project recently published a new [Summary on Raptors and Land-Based Wind Energy in the United States](#) on Tethys. Check it out to learn about raptors at risk, raptor monitoring, and mitigation strategies.

New E-TWG Whales & Offshore Wind FAQ

The [Whale Communications Specialist Committee](#) of the Offshore Wind Environmental Technical Working Group (E-TWG) has released an update to the [Frequently Asked Questions \(FAQ\) document](#) intended to aid in the dissemination of information around whale mortality events and the level of potential risk to whales from offshore wind development activities. This update includes causes of marine mammal strandings and Unusual Mortality Events, biases and limitations of stranding data, and mitigation measures required by regulators in the United States.

BOEM Seeking Public Input

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking public input on its Draft Environmental Analysis for its [Gulf of Maine](#) Offshore Wind Area through 22 July 2024. BOEM is also [seeking ideas](#) for baseline environmental and socioeconomic studies to inform decisions on potential offshore wind energy activities in the U.S. territories, as well as information on entities in the U.S. territories that have the capabilities, expertise, and interest in carrying out environmental monitoring and conducting studies. The deadline to respond is 23 August 2024.

WCOA Requests for Proposals

The West Coast Ocean Alliance (WCOA) is requesting proposals to support meeting design, logistics, and facilitation for its [Tribal Caucus Summit](#) on 13-15 January 2025 and the [WCOA Annual Summit](#) on 15-17 January 2025, in Ocean Shores, Washington, U.S. The deadline for both Requests for Proposals are due by 13 August 2024.

Calls for Abstracts

The Marine Alliance for Science and Technology for Scotland (MASTS) has opened the [Call for Abstracts](#) for the [MASTS 2024 Annual Science Meeting](#) through 22 August 2024. The meeting will take place 5-7 November 2024 in Glasgow, Scotland.

The [Call for Abstracts](#) for [WindEurope's Annual Event 2025](#) is now open through 6 September 2024. The annual event will take place 8-10 April 2025 in Copenhagen, Denmark.

The [Call for Abstracts](#) for the [Offshore Technology Conference \(OTC 2025\)](#) is open through 10 September 2024. OTC will take place 5-8 May 2025 in Houston, Texas, U.S.

Funding & Testing Opportunities

The U.S. DOE's WPTO recently opened a nearly [\\$5 million funding opportunity](#) to support programming and services for entrepreneurs and small businesses in marine energy. Concept papers are due 7 August 2024.

The Supergen Offshore Renewable Energy (ORE) Hub has launched its fifth [Flexible Fund Call for Proposals](#) and are seeking research proposals from universities or other institutions eligible to

hold UK Research and Innovation awards to facilitate a UK-led ORE research projects aligned with, and in partnership with the Hub. Expressions of interest are due 2 September 2024.

The U.S. DOE's Wind Energy Technologies Office (WETO) recently announced the [Offshore Wind National and Regional Research and Development Funding Opportunity](#), which will award \$48.6 million for projects that address several major areas of need for offshore wind, including improving offshore wildlife protection through new monitoring technologies. Concept papers are due 3 September 2024 and full applications are due 7 November 2024.

UK Research and Innovation has opened a follow-on [funding opportunity](#) to build on existing engineering and physical sciences research outputs to accelerate economic, societal, policy and environmental benefits. Applications must build on prior Engineering and Physical Sciences Research Council funding. Applications are due 24 September 2024.

New Jersey's Research and Monitoring Initiative has released a [Request for Proposals](#) to support research projects focused on furthering ecologically responsible offshore wind development. Letters of intent are due 28 August 2024 and proposals are due 9 October 2024.

The Testing Expertise and Access for Marine Energy Research (TEAMER) program, sponsored by the U.S. DOE and directed by the Pacific Ocean Energy Trust (POET), is accepting [Request for Technical Support \(RFTS\) 14](#) applications through 4 October 2024 to support marine energy testing and development projects. Open Water Support applications can be submitted any time.

The Ocean Energy Safety Institute (OESI) has published a [Request for Proposals](#) to support research pathways across oil and gas, wind energy, and marine energy. OESI anticipates awarding up to \$16 million to foster enhanced safety protocols, improved technologies, and new insights into risk management. Proposals are due 18 October 2024.

The Natural Environment Research Council (NERC) is planning to open a [funding opportunity](#) to enhance understanding of the ecological, economic, and social value of marine artificial structures' natural capital to inform decision making and policy solutions for management for all life stages. The outline stage will open 5 September 2024 and close 31 October 2024.

The U.S. DOE WPTO has published a [Notice of Intent](#) to provide up to \$112.5 million in funding to advance the commercial readiness of wave energy technologies through open water testing and system validation. DOE anticipates opening this opportunity in September 2024.

Career Opportunities

SMRU Consulting is looking for an [Offshore Wind Specialist Associate and/or Senior Scientist](#) with experience in consenting and impact assessment to support its marine mammal consulting work in the UK, Ireland, and possibly the U.S. Applications are due 5 August 2024.

The U.S. Bureau of Ocean Energy Management is hiring a [Renewable Energy Tribal Liaison Coordinator](#) to serve as subject matter expert for Tribal consultation related to offshore renewable energy planning, exploration, and development. Applications are due 8 August 2024.

Pacific Northwest National Laboratory (PNNL) is seeking an [Operations Specialist](#) to provide leadership and safety oversight to the Energy and Environment Directorate's portfolio of research operations across the PNNL Sequim Campus. Applications are due 9 August 2024.

The European Marine Energy Centre (EMEC) is looking for a [Project Manager](#) to manage the delivery of a variety of innovative renewable projects, with the focus on EMEC's infrastructure development for both site and developer based activities. Applications are due 12 August 2024.

The Coastal Studies Institute is looking for an [Environmental Specialist](#) who will be responsible for developing and implementing environmental monitoring and research protocols, maintaining environmental permits, and outreach related to the marine energy device testing for the Atlantic Marine Energy Center (AMEC). Applications are due 30 August 2024.

Avangrid is looking for a [Senior Offshore Wind Permitting Manager](#) to manage and coordinate permitting and compliance efforts for the New England Wind 1 Offshore Wind Project. The job posting closes on 20 September 2024.

Upcoming Events

Upcoming Webinars

New York State Energy Research and Development Authority's Offshore Wind team is hosting an Ask the Experts webinar, "[Remote Technology to Support Offshore Wind Operations and Maintenance](#)", on 7 August 2024 from 1:00-2:00pm EDT (5:00-6:00pm UTC). [Register here.](#)

The U.S. Offshore Wind Synthesis of Environmental Effects Research ([SEER](#)) team is hosting a webinar, "[Social Perceptions of the Environmental Effects of Offshore Wind Energy Development](#)", on 21 August 2024 from 1:00-2:00pm EDT (5:00-6:00pm UTC). The panelists will discuss how perceptions of offshore wind's environmental effects shape public opinion and community engagement, and how to best communicate environmental information to the public.

The U.S. DOE's WPTO is hosting its [WPTO Semiannual Stakeholder Webinar: AI, Machine Learning, and Water Power](#) on 22 August 2024 from 12:30-2:00pm EDT (4:30-6:00pm UTC). The webinar will feature experts from WPTO for a discussion on artificial intelligence and machine learning, including where they see potential benefits and uses of these tools in the hydropower and marine energy sectors and where they may already be in use.

Upcoming Conferences

The Dutch Marine Energy Centre (DMEC) is hosting the [Advancing Nature-Inclusive Offshore Renewable Energy Solutions Conference](#) on 17 September 2024 in The Hague, Netherlands.

The [International Conference on Ocean Energy \(ICOE 2024\)](#) will take place on 17-19 September 2024 in Melbourne, Australia. The [preliminary program](#) is now available.

The [North American Wind Energy Academy \(NAWEA\) / WindTech 2024 Conference](#) will take place from 30 October to 1 November 2024 in New Brunswick, New Jersey, U.S. Early bird registration has been extended through 7 August 2024.

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

[Predicted ecological consequences of wave energy extraction and climate-related changes in wave exposure on rocky shore communities](#) – Want et al. 2024

Wave energy has the potential to contribute in the transition to decarbonized electricity generation. Extracting wave energy might be expected to have ecological impacts on rocky shore intertidal communities where exposure is one of the most important factors determining species structure and composition. With global climatic change, coastal exposure is predicted to increase with greater significant wave height. The wave-exposed west coast of Orkney, Scotland, UK, is the site of pre-commercial wave device testing. Surveys of 39 rocky shore sites along this coast identified key species and abundances, and quantified exposure-modifying topographic variables. A spectral wave model was constructed to compare baseline, wave extraction, climate change, and combined scenarios.

[Country-Specific Guidance Document: Canada](#) – OES-Environmental 2024

The [guidance documents](#) are intended to be available for regulators and advisors as they carry out their decision-making and for developers and consultants as they prepare consenting and licensing applications. This country-specific document presents an overview of regulations relevant for marine renewable energy development in Canada from pre-application, through to application and post-consent and is intended mainly for developers and consultants. It is not intended to replace any formal guidance or prescribe action, but rather provide a starting point for understanding the key requirements of the regulatory framework. This document is intended to be read in conjunction with the [background document](#).

[Underwater acoustic propagation modeling and utilization for marine hydrokinetic devices](#) – Hafla 2024

To date, the power optimization of marine hydrokinetic (MHK) arrays has been prioritized over how its sound is produced, directed, and may impact the marine soundscape. There is a gap in knowledge regarding how marine fauna may respond to these sounds and what their physical and behavioral impact may be, and an absence in

measured levels from insitu MHK deployments. A model for predicting the propagation of sound from an array of MHK sources in a real environment is essential for understanding potential impacts on a surrounding system. This work presents a fully three-dimensional solution to a set of coupled, linearized velocity-pressure equations in the time-domain as applied to underwater systems, and is an alternative sound propagation model to the Helmholtz and wave equation methods.

Wind Energy

[Potential for spatial coexistence of a transboundary migratory species and wind energy development](#) – Huang et al. 2024

Global expansion in wind energy development is a notable achievement of the international community's effort to reduce carbon emissions during energy production. However, the increasing number of wind turbines have unintended consequences for migratory birds and bats. Wind turbine curtailment and other mitigation strategies can reduce fatalities, but improved spatial and temporal data are needed to identify the most effective way for wind energy development and volant migratory species to coexist. Mexican free-tailed bats (*Tadarida brasiliensis mexicana*) account for a large proportion of known bat fatalities at wind facilities in the southwestern US. We examined the geographic concordance between existing wind energy generation facilities, areas of high wind potential amenable for future deployment of wind facilities, and seasonally suitable habitat for these bats.

[Wind Energy: Technologies and Approaches to Help Address Environmental Effects](#) – U.S. Government Accountability Office 2024

Wind energy is one of the fastest-growing renewable energy sources globally. Onshore and offshore wind energy provide an abundant source of electricity with significant environmental benefits, including lower atmospheric greenhouse gas emissions during electricity generation. However, the increases in the development of wind energy facilities increases the potential environmental effects of these facilities, including greater use of natural resources like critical materials and steel, decommissioning and recycling difficulties, and ecological effects such as wildlife harm. This report discusses (1) technologies or approaches to help reduce the potential environmental effects related to the life cycle of utility-scale wind energy projects, (2) challenges that might hinder implementation of these technologies or approaches, and (3) policy options to help address these challenges.

[Global Review on Environmental Impacts of Onshore Wind Energy in the Field of Tension between Human Societies and Natural Systems](#) – Sander et al. 2024

Deploying onshore wind energy as a cornerstone of future global energy systems challenges societies and decision-makers worldwide. Expanding wind energy should contribute to a more sustainable electricity generation without harnessing humans and their environment. Opponents often highlight the negative environmental impacts of wind

energy to impede its expansion. This study reviews 152 studies to synthesize, summarize, and discuss critically the current knowledge, research gaps, and mitigation strategies on the environmental impacts of onshore wind energy. The investigated effects comprise impacts on the abiotic and biotic environment, with birds and bats in particular, noise and visual impacts. Effects are discussed in the context of social acceptance, other energy technologies, and wind energy expansion in forests. This review illustrates that many effects are highly case-specific and must be more generalizable.

News & Press Releases

Marine Energy

[Irish Wave Energy Pioneer Deploys World's First Electricity Grid-Scale Device at U.S. Navy Test Site in Hawaii](#) – Ocean Energy USA

Ocean Energy USA LLC recently announced that it has successfully deployed its 826-ton wave energy convertor buoy, the OE-35, at the US Navy's Wave Energy Test Site (WETS) on the windward coast of the Hawaiian Island of Oahu. After commissioning and testing onsite, the device will be connected to the Hawaiian electricity grid by subsea cable in the coming weeks. The utility-scale wave energy device measures 125 x 59 feet, has a draft of over 30 feet, and a potential rated capacity of up to 1.25 megawatts in electrical power production. It is located north of Mōkapu Peninsula, at the WETS site in Kaneohe Bay, having been towed there from Honolulu on Friday, July 19. The US\$12million project is part-funded by the US DOE's Office of Energy Efficiency and Renewable Energy and the Sustainable Energy Authority of Ireland.

[UK increases tidal stream ringfence budget](#) – Offshore Energy

The UK government has raised the funding for tidal stream ringfence in this year's renewable auction from £10 million (approximately \$12,8 million) to a £15 million (approximately \$19,2 million) budget. The Marine Energy Council (MEC) welcomed the increase, which is expected to contract an additional 25 MW of tidal stream capacity to the UK's deployment pipeline. "The UK Government has demonstrated international leadership in increasing the tidal stream ringfence to £15m. This is an important step forward in realising the potential of this entirely predictable renewable energy resource," said Sue Barr, Chair of the MEC. "The UK can lead the world in harnessing the power of its tides, and in exporting tidal stream technology and its expertise around the world." In March, the UK government set a £10 million ringfence for tidal stream in this year's renewables auction, which has now risen.

[Marine Energy Technology Innovators Receive \\$1.2 Million in Second Phase of Prize Focused on Novel Wave Energy Technologies](#) – U.S. DOE

The U.S. DOE's WPTO recently announced the 15 winning teams in Phase II of the American-Made Innovating Distributed Embedded Energy Prize (InDEEP). Each team

was awarded \$80,000, for a combined \$1.2 million in cash prizes, for showcasing the performance capabilities and characteristics of their distributed embedded energy converter technology (DEEC-Tec) concepts to harness and convert the power of ocean waves into usable types of energy. DEEC-Tec concepts combine many small energy converters, often less than a few centimeters in size, into a single, larger ocean wave energy converter. This larger system could convert energy from a wide range of ocean locations and wave types. During Phase II, teams undertook proof-of-concept tests where they designed, built, and tested single distributed embedded energy converter (DEEC) prototypes that could be tailored for wave energy conversion in the future.

CETO Wave Energy Ireland wins EU-backing for wave energy project – Offshore Energy

CETO Wave Energy Ireland (CWEI), a wholly-owned subsidiary of Carnegie Clean Energy, has secured funding to participate as an industry partner/wave energy technology representative in the Modular Electrical Generator PTO system for wave (MEGA WAVE PTO) project, funded by Horizon Europe. Carnegie said it will provide technical support, leveraging its experience as a wave energy technology developer, to help progress the industry and apply lessons learned from the project. In June, Carnegie unveiled that its ACHIEVE Project Manager, Miguel Santos Herrán, attended the MEGA WAVE PTO project kick-off meeting in Edinburgh. CWEI will be collaborating with a group of innovators, and provide a technology developer perspective to the project, alongside WavEC – Offshore Renewables, Technical University of Crete, and many others.

Apollo Announces Successful Trial of Innovative PALM QCS™ System in Orkney – Apollo

Apollo is thrilled to report the successful trial of the PALM Quick Connection System (QCS) for floating offshore renewables. The trials, which took place from the end of March to the end of May this year in Orkney, demonstrated the robust capabilities of the system in real-sea conditions. Developed through the Wave Energy Scotland (WES) Quick Connection Systems programme and with support from the Offshore Wind Growth Partnership, the PALM QCS is designed to streamline the efficient hook-up and disconnection of cables and/or moorings for floating offshore renewable devices. This system reduces operational costs significantly by enabling quick connections and disconnections via the winching action of a conventional tow tug. This process reduces time in the field of operational service vessels whilst also reducing lost power generation time when systems are disconnected.

OPALCO applies for FERC preliminary permit for Rosario Strait Tidal Energy Project – Hydro Review

Orcas Power & Light Cooperative (OPALCO) has submitted a preliminary permit application to the Federal Energy Regulatory Commission for the Rosario Strait Tidal Energy Project. The site for the project is just east of Blakely Island in San Juan County, Washington. OPALCO is a member-owned, non-profit cooperative utility. OPALCO said an Orbital O2 device deployed at the Rosario Strait location could generate enough

energy for about 5% of OPALCO's annual needs. OPALCO requested a 36-month preliminary permit. The proposed project would serve as a pilot project to test the capacity of Rosario Strait for tidal turbine technology that supports OPALCO's microgrid. The Orbital O2 device proposed for use in this location is a floating tidal turbine with a 245-ft-long hull and twin rotors suspended underneath.

Wind Energy

[Record breaking funding for clean energy in Britain](#) – UK Government

Renewable industry to bid for record breaking funding as the Energy Secretary unveils the largest-ever budget for delivering new homegrown clean energy projects in the UK – boosting energy security, securing cheap power for families, and unlocking economic growth and jobs for the country. Ed Miliband recently announced the budget for this year's renewable energy auction is being increased by £500 million to over £1.5 billion - a record budget - helping build new green infrastructure as part of the mission to deliver clean power by 2030. This includes £1.1 billion for offshore wind – the backbone of the UK's clean energy mission – which has more budget available than all of the previous auctions combined, sending a strong signal to industry to invest in UK waters.

[California PUC Sets Out Procurement Path for 7.6 GW of Offshore Wind in Operation by 2037](#) – Offshore Wind

The California Public Utilities Commission (CPUC) has issued a proposed decision that could see the US state running three offshore wind solicitations to procure up to 7.6 GW of installed capacity. The first projects under the proposed procurement timeline would be in operation by 1 June 2035. The proposed decision, issued on 19 July, is on an initial need determination for centralised procurement of long lead-time (LLT) resources, as directed by the bill that California Governor Gavin Newsom signed into law in October 2023 (bill AB 1373). Under the bill, the CPUC may request that the Department of Water Resources (DWR) procure electricity from diverse LLT resources on behalf of customers of all load-serving entities (LSEs) under the Commission's integrated resource planning (IRP) purview.

[RWE and Saitec collaborate to commission enhanced environmental monitoring studies at DemoSATH floating offshore wind project](#) – RWE

The DemoSATH floating offshore wind turbine has been operational off the Basque coast since September 2023 and is providing first-hand insights into the challenges of operating floating wind turbines on the open sea. Now, Spanish engineering firm Saitec Offshore Technologies and global offshore wind player RWE have launched the "DemoSATH Lab" initiative to carry out further environmental monitoring studies around the demonstrator. The DemoSATH Lab research will study the platform's interactions with the environment focusing on the possible impact on birds, the emission of underwater noise and the interactions of marine life with the structure. The programme will last until at least the end of 2025 in order to span multiple seasons and weather conditions.

New Great British Energy partnership launched to turbocharge energy independence – UK Government

The Prime Minister and Energy Secretary recently announced a new unprecedented partnership between Great British Energy and The Crown Estate, which has the potential to leverage up to £60 billion of private investment into the UK's drive for energy independence. Great British Energy will be at the heart of the government's mission to make Britain a clean energy superpower. The company will be owned by the British people, for the British people, backed with £8.3 billion of new money over this Parliament to own and invest in clean power projects in regions across the UK. The Crown Estate estimates this partnership will lead to up to 20-30GW of new offshore wind developments reaching seabed lease stage by 2030, enough power for the equivalent of almost 20 million homes.

BOEM Releases Final Environmental Impact Statement for Wind Energy Project Offshore Maryland – U.S. BOEM

In support of the Biden-Harris administration's goal of deploying 30 gigawatts of offshore wind energy capacity by 2030, BOEM recently announced the availability of its final Environmental Impact Statement (EIS) for a proposed wind project offshore Maryland. BOEM has now completed environmental reviews for ten commercial-scale offshore wind projects since the start of the Biden-Harris administration. If approved, this project could generate between 1,100 and 2,200 megawatts of clean, renewable energy for the Delmarva Peninsula, and power up to 770,000 homes. US Wind is seeking approval for its proposed Maryland offshore wind project, which includes three planned phases. Two of those phases, MarWin and Momentum Wind, have received offshore renewable energy certificates from the State of Maryland.

UL researchers pioneer robotic solution for floating wind farm maintenance – UL

Researchers at the University of Limerick (UL) have pioneered a robotic solution for inspecting floating offshore wind farms. A UL developed remote-operated vehicle was successfully tested at WindFloat Atlantic, the world's first semi-submersible floating offshore wind farm, and the results will help prepare for the challenges of maintaining these structures. The intervention, repair and maintenance survey was carried out by a team from the Centre for Robotics and Intelligent Systems (CRIS) at UL. Regular inspections and maintenance are vital for offshore wind farms, whether bottom-fixed or floating and currently, these tasks rely heavily on human intervention. However, with the industry's growth and advancements, there is an increased emphasis on enhancing reliability and reducing operational costs.