



**20 December 2024**

[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**

### Marine Energy Illustrations Survey

Pacific Northwest National Laboratory (PNNL) is currently developing new marine energy illustrations and is [seeking input from marine energy scientists and educators](#) regarding which graphics would be most beneficial to their work. The survey solicits preferences on illustration styles, types of graphics, and ideas for illustrations, with some example illustrations provided. The final illustrations will be made publicly available on [Tethys](#) and [Tethys Engineering](#).

### EnergyTech UP

The U.S. Department of Energy (DOE) Office of Technology Transitions has opened registration for the [EnergyTech University Prize \(EnergyTech UP\)](#), where student teams will compete to identify a promising energy technology, assess its market potential, and create a business plan for commercialization. Faculty submissions are due 13 January 2025, an informational webinar will take place on 23 January, and student registration for the Explore Phase is due 3 February.

### BOEM Seeking Public Comment

The U.S. Bureau of Ocean Energy Management (BOEM) is [inviting public comment](#) on a regional environmental analysis of potential mitigation measures on future development activities for five offshore wind lease areas off California's coasts. BOEM will hold two virtual public meetings on 28 and 30 January 2025. Comments are due 12 February 2025.

## 2025 National Wind Energy Art Challenge

The U.S. DOE's Wind Energy Technologies Office (WETO) is inviting students from kindergarten through 8th grade across the United States to create artwork on the theme "Beautiful Wind Energy" for the [National Wind Energy Art Challenge](#) through 28 February 2025. Four entries from each grade will be selected to have their work on display at the World KidWind Challenge at [CLEANPOWER 2025](#) on 19-22 May 2025 in Phoenix, Arizona.

## Calls for Abstracts

The [Call for Abstracts](#) for [OCEANS 2025 Brest](#) is open through 20 December 2024. OCEANS 2025 Brest will take place from 16-19 June 2025 in Brest, France.

The [Call for Abstracts](#) for the [40th International Workshop on Water Waves and Floating Bodies \(IWWWFB 2025\)](#) is open through 10 January 2025. The workshop will take place on 11-14 May 2025 in Shanghai, China.

The [Call for Abstracts & Paper Submissions](#) for the [16th European Wave and Tidal Energy Conference \(EWTEC 2025\)](#) has now opened until 13 January 2025. EWTEC will take place on 7-11 September 2025 in Madeira, Portugal.

The [Call for Abstracts](#) for the [European Geoscience Union \(EGU\) General Assembly 2025](#) is now open through 15 January 2025. The EGU General Assembly 2025 will take place on 27 April–2 May 2025 in Vienna, Austria and online.

The [Call for Abstracts](#) for the [8<sup>th</sup> Conference on Wind Energy & Wildlife Impacts \(CWW 2025\)](#) is now open until 31 January 2025. CWW will take place on 8-12 September 2025 in Montpellier, France.

The [Call for Abstracts](#) for the [7th International Conference on The Effects of Noise on Aquatic Life \(Aquatic Noise 2025\)](#) is now open through 28 February 2025. Aquatic Noise 2025 will take place from 29 June to 4 July 2025 in Prague, Czech Republic.

## Funding & Testing Opportunities

Washington Maritime Blue, a leading maritime innovation cluster in the Pacific Northwest, has opened applications for its [2025 Blue Ventures Programs](#), which will support early-stage founders validating their technology and preparing for market entry, including for renewable ocean energy. Applications are due 6 January 2025.

The U.S. DOE's WETO has issued a [Funding Opportunity Announcement](#) in coordination with Innovation Fund Denmark to support U.S.-Danish consortia collaborating on shared research objectives to improve floating offshore wind energy mooring and anchoring technologies and methods towards commercialization and industry growth. Submissions are due 14 January 2025.

The U.S. State of Maine's is [seeking applications](#) for science-based services from consultants with strong knowledge of Gulf of Maine science and research, Gulf of Maine stakeholders, state government, and offshore wind to address high priority research needs identified by the Maine Offshore Wind Research Consortium. Applications are due 17 January 2025.

Horizon Europe (HORIZON) has opened several Calls for Proposals including, [Minimisation of environmental, and optimisation of socio-economic impacts in the deployment, operation and decommissioning of offshore wind farms](#), [Demonstrations of innovative floating wind concepts](#), and [Critical technologies for the future ocean energy farms](#). Proposals are due 4 February 2025.

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 \(RFTS\) 15](#) applications through 7 February 2025 to support marine energy testing and development projects. Open Water Support applications can be submitted any time. TEAMER is now offering [Results Dissemination Support](#) (i.e., travel and publication support).

The U.S. DOE's WETO recently announced the [Wind Turbine Technology Recycling Funding Opportunity](#), which will invest up to \$20 million to help develop technology solutions to improve the recyclability of wind energy technologies. Applications are due 11 February 2025.

#### Career Opportunities

The Marine Management Organisation is seeking a [Senior Offshore Wind Advisor](#) to work within the Strategic Renewables Unit, which supports planning and licensing functions, and focus on offshore renewable (particularly offshore wind). Applications are due 2 January 2025.

PNNL is soliciting applications for a [Postdoctoral Research Associate – Coastal Biogeochemistry](#) to study different marine carbon dioxide removal (mCDR) technologies. Applications are due 13 January 2025.

Ifremer, a leading French institute in marine sciences, has announced its call for applications for [6 Postdoctoral Contracts](#). Potential projects could focus on marine renewable energy technologies (offshore and floating wind, tidal energy, wave energy) and resource assessment and design. Applications are due 27 January 2025.

Northumbria University is offering a [PhD opportunity to develop high-fidelity CFD models for offshore energy systems](#), such as wave energy converters and floating offshore wind turbines. Applications are due 3 February 2025.

East Carolina University (ECU) is recruiting a [PhD in Integrated Coastal Sciences](#) to study the social acceptance and engagement around introducing marine energy technology and participate in Atlantic Marine Energy Center (AMEC) activities. Priority applications to the ECU program are due by 15 February 2025.

European Marine Energy Centre (EMEC) is looking for an [Operations & Technology Director](#) to lead EMEC's operational, technical and project delivery activities and an [Assistant Project Manager](#) to support the management of the project lifecycle and liaise with relevant stakeholders.

BladeRunner Energy is seeking a [Mechanical Systems/Mechatronics Engineer](#) to support the engineering development of its hydrokinetic system.

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## Upcoming Events

### Webinar Recordings Available

WaveEC Offshore has shared the webinar recording for the [SafeWAVE \(Streamlining the Assessment of Environmental Effects of Wave Energy\) Final Event](#), held on 28 November 2024. The event marked the culmination of three years of impactful research and included insights on environmental research, consenting and planning, and public education and engagement.

Australia's Blue Economy Cooperative Research Centre has shared the webinar recording for "[Ocean Wave Energy in Australia](#)", which it recently hosted on 3 December 2024. The webinar discussed a [recent report](#) that details the Australian wave resource, the markets and integration potential for wave energy, as well as the regulatory, environmental, social and cultural factors.

The National Aquaculture Association has shared the webinar recording for "[Opportunities for the Co-location of Marine Energy and Aquaculture](#)", which it recently hosted on 6 December 2024. During the webinar, researchers from the Pacific Northwest National Laboratory (PNNL) shared the results of their efforts to date in Washington, as well as outcomes of similar investigations in Hawaii, California, and Puerto Rico.

### Upcoming Webinars

The U.S. Offshore Wind Synthesis of Environmental Effects Research ([SEER](#)) project is hosting a webinar, "[Exploring the Potential Environmental Effects of Offshore Wind Energy in the U.S. Gulf of Mexico](#)" on 23 January 2025 from 9:00-11:00am PST (5:00-7:00pm UTC). Speakers will discuss offshore wind siting/permitting in the U.S. Gulf of Mexico, relevant technologies and infrastructure, potential environmental effects of offshore wind development in the region, monitoring and mitigation methodologies, and knowledge gaps and data needs. [Register here.](#)

The Nature Conservancy is hosting a webinar, "[Sharing the Social Value of Offshore Wind Through Community Benefits Agreements](#)", on 23 January 2025 at 12:00pm EST (5:00pm UTC). Speakers will discuss their experience supporting community benefit agreements across Europe and Japan, and a new report which reviews examples of how the U.S. federal government and states are incentivizing and incorporating community benefits agreements into their offshore wind development processes.

Renewables Grid Initiative and OCEaN - North & Baltic Seas are kicking off a new webinar series to present highlights from their [recent report](#) and lessons learned from OCEaN's

exploration of the topic of mitigation. The webinar, “[Fostering Healthy Seas: Avoidance and Minimisation of Environmental Impacts from Offshore Wind and Grids](#)”, will take place on 23 January 2025 from 11:00am-12:15pm CET (10:00-11:15am UTC).

The Supergen Offshore Renewable Energy Hub is hosting a webinar, “[The use of Dynamic Bayesian Network Modelling for the Spatial and Temporal Understanding of Marine Ecosystem Dynamics](#)”, on 29 January 2025 from 1:00-2:00pm UTC. During the webinar, Dr. Neda Trivonova from the University of Aberdeen will discuss marine ecosystem dynamics.

### Upcoming Conferences

POET is hosting the [Northwest Offshore Wind Conference 2025](#) on 19 February 2025 in Portland, Oregon, U.S. Early bird registration ends on 31 December 2024.

WindEurope is hosting the [WindEurope 2025 Annual Event](#) on 8-10 April 2025 in Copenhagen, Denmark. Registration is now open.

Save the date! The University Marine Energy Research Community (UMERC) will be holding their [UMERC 2025 Conference](#) from 12-14 August 2025 in Corvallis, Oregon, U.S. Registration information, agenda, calls for abstracts/posters, and more information will be coming soon.

### Upcoming Course

The Atlantic Marine Energy Center is hosting a fully funded, intensive course, [Introduction to Marine Energy](#), from 3-9 August 2025 at the University of New Hampshire in Durham, New Hampshire (U.S.). The course is designed for U.S. undergraduate students (rising juniors and seniors) and beginning graduate students interested in the field of marine energy. Applications are due 10 January 2025.

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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**

### **[Marine spatial planning techniques with a case study on wave-powered offshore aquaculture farms](#) – Ewig et al. 2025**

As emerging marine technologies lead to the development of new infrastructure across the ocean, they enter an environment that existing ecosystems and industries already rely on. Although necessary to provide sustainable sources of energy and food, careful planning will be important to make informed decisions and avoid conflicts. This paper examines several techniques used for marine spatial planning, an approach for analyzing and planning the use of marine resources. Using open-source software including QGIS

and Python, the potential for developing offshore aquaculture farms powered by a reference model wave energy converter from the Sandia National Labs, the RM3, along the Northeast coast of the United States is assessed and several feasible sites are identified.

### **2024 State of the Science Report - Chapter 5: Stakeholder Engagement for Marine Renewable Energy – Rose & Freeman 2024**

Engaging stakeholders leading up to the development of a marine renewable energy (MRE) project has been shown to be linked to an increased chance that the project will proceed with minimal opposition. Chapter 5 discusses the range of stakeholder involvement that begins with legally mandated informing and involving of stakeholders, through preferred practices that bring stakeholders further into the process for siting and designing MRE projects. This increased level of engagement can provide a greater sense of stewardship for MRE projects, as well as engage local communities and those with skills and knowledge that can benefit the project. Implementing best practices and measuring their outcome are key parts of stakeholder engagement processes that have shown levels of success in other industries, as described in this chapter.

### **ICOE 2024 Key Takeaways Report – Brito e Melo 2024**

A comprehensive overview of the discussions and strategic directions from the International Conference on Ocean Energy (ICOE). Held in Melbourne from September 17-19, 2024, this global event brought together experts to share milestones and explore the future of ocean energy. This report captures the essence of the conference's dialogue, offering a concise summary of key themes, such as technological innovation, policy development, and environmental impact. Enriched by exclusive interviews with industry stakeholders, researchers, and policymakers, it provides unique perspectives, adding depth to the report. Notable highlights include the release of the OES-Environmental 2024 State of the Science Report and a celebration of the IEA-OES Poster Award winners, with significant research contributions to the field.

## **Wind Energy**

### **Limited Evidence Base for Determining Impacts (Or Not) of Offshore Wind Energy Developments on Commercial Fisheries Species – Gill et al. 2024**

The coexistence between offshore wind and fisheries has raised questions about potential impacts on species that are fished. We systematically evaluated the offshore wind farm (OWF) literature for evidence of effects leading to impacts on commercial fisheries species. First, we collated evidence of environmental effects of OWFs on fisheries species and then determined whether these could be interpreted as impacts using fishery-scale and organism-scale parameters for pelagic finfish, demersal and reef-associated roundfish, demersal flatfish, elasmobranchs and shellfish. We appraised consistency and level of agreement of direct evidence and explored the body of indirect evidence. A total

of 1268 documents featured evidence of OWF effects on fisheries species, with only 60 documents (274 species records) providing direct evidence.

### **[Focusing the view: Improved methods for assessing viewshed impacts of onshore wind turbines – Dong et al. 2024](#)**

Onshore wind turbine capacity continues to grow and will only accelerate, though siting can be challenging given community opposition. We apply the hedonic valuation method with residential property sales data to assess nearby residents' willingness to pay to avoid having views of turbines from their property. In doing so, we aim to improve methods of assessing viewshed impacts for turbines and other amenities and disamenities that have a visual component. Our recommended viewshed approach uses a Digital Surface Model (DSM), which accounts for trees and buildings that obstruct views. For comparison, we also create viewsheds based on bare-earth Digital Elevation Model (DEM), which has been more typically used other studies. Using data from New England, USA, we use a difference-in-differences identification strategy with treatment defined by the visibility of a wind turbine, while also controlling for proximity-based treatment effects.

### **[Study of underwater sound propagation and attenuation characteristics at the Yangjiang offshore wind farm – Huo et al. 2024](#)**

The rapid growth of offshore wind farms has become a global priority, with both new and total installed capacities increasing sharply. Consequently, underwater noise generated with these developments has garnered significant attention. This study investigated the signals produced by 5.5 MW wind turbines at the Yangjiang offshore wind farm, focusing on various distances and depths. Results showed that the primary energy of the underwater noise was concentrated below 1500 Hz. At the same distance, deeper waters had lower noise levels than shallower waters. The discrete spectrum near the wind farm has a dominant frequency of 44 Hz. The peak sound pressure levels reach 93.76 dB at a depth of 10 m and 81.55 dB at 20 m, measured 50 m from the turbine. Horizontally, the sound pressure level of the dominant frequency decreased consistently as the distance from the wind farm increased.

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## **News & Press Releases**

### **Marine Energy**

#### **[Ocean Kinetics and Green Marine complete OpenHydro decommissioning at EMEC – EMEC](#)**

Two leading Scottish marine engineering firms, Ocean Kinetics and Green Marine, have successfully completed the decommissioning of OpenHydro's pioneering tidal energy platform at EMEC in Orkney. OpenHydro was the first developer to use EMEC's tidal test site at the Fall of Warness and became the first tidal turbine to be grid-connected in Scotland and the first to successfully generate electricity to the national grid in the UK.

The decommissioning project, contracted by EMEC, involved a range of marine services. A joint venture partnership was formed in April to deliver the contract, combining Ocean Kinetics' divers, riggers, welders and ROV services, and Green Marine's offshore management, vessel, moorings and cable experience, with shared responsibility for operational engineering, cutting and heavy-lift operations.

### **Inyanga Marine Energy Group releases innovative design for 20MW tidal energy project in Wales – Inyanga Marine Energy Group**

Inyanga Marine Energy Group has announced the design blueprint for their 20MW HydroWing technology to be deployed at Morlais in Wales. The tidal energy array will incorporate the revolutionary Tocardo T3 turbine for the first time, with each of the twenty HydroWing units to be powered by two T3 turbines. Inyanga Marine Energy Group have secured 20MW of capacity for their project at Morlais through the UK Government's Contracts for Difference scheme Allocation Rounds 5 and 6 (AR5 and AR6) with the HydroWing allocation in AR6 being the largest tidal energy award in the UK. A demonstration project will take place at Morlais in 2025.

### **TEAMER Network Director Announces RFTS 14 Technical Support Recipients – TEAMER**

On December 17, 2024, the U.S. TEAMER program announced the selection of 15 projects through its fourteenth Request for Technical Support (RFTS), reflecting a total funding amount of nearly \$1.9 million. These projects will receive support for testing expertise and access to numerical modeling, laboratory or bench testing, tank/flume testing, and expertise within the growing TEAMER Facility Network. Selected applicants, along with their supporting Facility, will now submit their completed Test Plans, a requirement before assistance activities can commence. Supported by the U.S. DOE and directed by POET, TEAMER accelerates the viability of marine renewables by providing access to the nation's best facilities and expertise to solve critical challenges, build knowledge, foster innovation, and drive commercialization.

### **Positive findings from an FRDC-funded 'AquaGrid' feasibility study have identified ocean energy microgrids as an option to power coastal aquaculture production and help decarbonise the sector. – Fisheries Research and Development Corporation**

Australia's aquaculture sector will be among the first to add ocean-generated energy, along with solar and battery systems, to power the future of its operations. Among those moving to invest in the potential of ocean energy microgrid options is Southern Ocean Mariculture (SOM), an abalone farming business on the outskirts of the Victorian coastal town of Port Fairy. After modelling 18 different technology and implementation scenarios for ocean energy, SOM selected two preferred options based on its specific needs and their geographic location. The first option involves two 100kW Azura wave energy generators combined with solar, grid energy and back-up diesel power supply. Each Azura unit would produce more than 470,000kwh a year, based on analysed wave data.



## **Biden-Harris Administration identifies 4 business 'accelerators' to boost the Blue Economy** **– National Oceanic and Atmospheric Administration (NOAA)**

The Department of Commerce and NOAA recently announced that it is recommending awards totaling \$54.3 million to four organizations to support small businesses and entrepreneurs. Organizations will use these funds to bring to market solutions that will benefit coastal resilience and a sustainable Blue Economy. The selection demonstrates NOAA's commitment to advance maritime commerce and inspire the next generation of Blue Economy leaders. This investment is funded by the Inflation Reduction Act as part of the Biden-Harris Administration's Investing in America agenda. The four organizations, deemed business "accelerators," will provide guidance, support and funding to help small businesses scale quickly to spur the development of technologies and services that address a wide range of maritime issues.

## **Wind Energy**

### **BOEM Announces Next Steps in Competitive Leasing Process for Offshore Wind Energy in Gulf of Mexico** – U.S. BOEM

The U.S. BOEM recently announced that it is issuing a Determination of Competitive Interest in two Wind Energy Areas (WEAs) in the Gulf of Mexico. The determination comes after an unsolicited request from Hecate Energy Gulf Wind LLC expressing interest in acquiring a commercial wind energy lease for WEA options C and D. On July 29, 2024, BOEM published a Request for Competitive Interest (RFCI) in the Federal Register seeking feedback on Hecate's unsolicited lease request. Invenergy GOM Offshore Wind LLC expressed interest in WEA options C and D. BOEM has deemed both Hecate and Invenergy to be legally, technically, and financially qualified to hold an OCS renewable energy lease in the Gulf of Mexico. As a result of this review, BOEM has determined that competitive interest exists in the RFCI areas. BOEM will move forward with the competitive lease process and proceed to hold the next offshore wind lease sale in the Gulf of Mexico in 2026.

### **Ørsted has started marine environmental baseline surveys for Gippsland Offshore Wind Farm** – Ørsted

One of the important early milestones for Ørsted's Gippsland Offshore Wind farm site has commenced, with the marine environmental baseline survey programme commencing this November. The survey programme plays a critical role in informing the development of the project by assisting us in understanding all aspects of the unique Bass Strait marine environment. This includes vessel-based and aerial marine fauna surveys (seabirds and marine mammals), underwater acoustic monitoring, and marine ecology studies. The data collected will inform the project's design and help minimise the environmental impact of the project. The baseline data will be used as part of environmental impact assessments and included in environmental approvals. Ørsted is engaging with local specialists and leveraging our global experience to facilitate a smooth and efficient project delivery.

## **Portugal beckons floating wind era after agreeing Tech Free Zone rules on Atlantic coast – WavEC Offshore Renewables**

Portugal is beckoning a new era for offshore wind after officially signing ‘rules of procedure’ for a new Technological Free Zone located off the coast of Viana do Castelo. The news was announced during an international conference in Lisbon promoting offshore wind supply chain development between Portugal and Norway. Addressing the delegation, Portugal’s Secretary of State for Maritime Affairs Lúcia Bulcão said work is accelerating to approve the nation’s Offshore Renewable Energy Allocation Plan known as PAER. Once approved, PAER is expected to serve as a “solid basis” for the development of Portugal’s offshore renewable energy sector responding to “great expectations” from the industry and market.

## **BMT Introduces ‘The Deep Blue Project’ at Offshore Wind Australia Conference 2024 – BMT**

BMT, a global leader in environmental sciences, maritime engineering, and asset management, proudly unveils The Deep Blue Project, a pioneering initiative advancing autonomous technologies for real-time, high-quality maritime data collection. As part of The Deep Blue Project, BMT and Ocius have initiated a trial of an autonomous vessel equipped with advanced environmental sensors, a multi-beam echo sounder, high-resolution cameras, and state-of-the-art data links. Operating in the Gippsland region, the vessel streams live data on seabed mapping, water quality, and marine wildlife activity, providing stakeholders with a real-time view of the maritime environment. This data will be showcased on BMT’s website, reflecting the project’s commitment to transparency and innovation in environmental sciences, maritime engineering, and asset management.

## **Google and Apex Collaborate on Virginia’s First Onshore Wind Farm – Apex Clean Energy**

Apex Clean Energy and Google recently announced a power purchase agreement for the full capacity of Rocky Forge Wind. As Virginia’s first onshore wind farm, the 79.3 MW project represents a historic milestone, both for the Commonwealth and for Apex in its home state. This partnership is the second between Apex and Google, following the agreement for Timbermill Wind in North Carolina. Rocky Forge will support Google’s data centers in Virginia, advancing the company’s 2030 goal to achieve net-zero emissions and 24/7 carbon-free energy, matching its electricity needs with clean energy every hour of every day. The project will utilize GE wind turbines and is slated to begin commercial operations in 2026.