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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

Community Energy Innovation Prize

The U.S. Department of Energy (DOE) recently launched the [Community Energy Innovation Prize](#), a competition that will award cash prizes and mentorship opportunities to organizations supporting innovation, entrepreneurship, capacity building, and economic development in communities historically underrepresented in climate and energy technology funding. Collegiate Track submissions are due 3 November 2023 and Clean Energy Ecosystem and Manufacturing Ecosystem Track applications are due on 2 February 2024.

CMTS Proposed Guidance

The U.S. Committee on the Marine Transpiration System (CMTS) recently published a notice of availability for public comment on the [Proposed National Guidance for Industry on Responding to Munitions and Explosives of Concern in U.S. Federal Waters](#), intended for the offshore energy industry. The public comment period closes on 25 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.

Photo and Video Contest

The U.S. DOE's Water Power Technologies Office (WPTO) [recently launched](#) the [Make A Splash Photo and Video Contest](#) to capture photos and videos of water power that transport viewers and showcase the scope and potential of water power as a renewable energy. Cash prizes are available. Submissions due 17 November 2023.

Calls for Abstracts

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 [Offshore Technology Conference \(OTC 2024\)](#) is open through 12 September 2023. OTC will take place 6-9 May 2024 in Houston, Texas, U.S. Abstracts are being considered for a dedicated three-day Offshore Wind Energy Thread.

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 [Making Waves with Communication: Approaches to Communication, Outreach, & Engagement for Ocean Sciences](#).

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 U.S. DOE WPTO recently published a [Notice of Intent](#) to issue a \$14.5 million funding opportunity to support marine energy research at U.S. institutions of higher education, including minority-serving institutions. WPTO expects to release this funding opportunity in fall 2023 in partnership with DOE's Wind Energy Technologies Office (WETO).

The U.S. DOE's WETO and WPTO and the Department of Interior's Bureau of Ocean Energy Management and Bureau of Safety and Environmental Enforcement also published a [Notice of Intent](#) to issue a funding opportunity to improve the reliability of mooring lines and to reduce

noise associated with installing fixed-bottom offshore wind energy foundations. This funding opportunity is expected to be released in October 2023.

The Renewable Energy Wildlife Research Fund recently announced a [Request for Qualifications](#) to recruit researchers to conduct wind-wildlife research projects at U.S. and/or Canada facilities starting in 2024. Applications are due 8 September 2023.

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 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

Aberdeen University is advertising a fully-funded [PhD in Biological Sciences](#) for eligible UK students on understanding marine ecosystems in the face of future variability and extreme events. Applications are due 3 September 2023.

Pacific Northwest National Laboratory (PNNL) is seeking a [Post Masters Research Associate - Marine Energy](#) to support a large data management system known as [PRIMRE](#), which contains multiple databases about marine energy development in the United States and internationally. Responsibilities will include adding and curating content, assisting in system architecture and UX/UI development, analyzing and visualizing data, and supporting public outreach. Applications are due 7 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.

The European Marine Energy Centre is looking for an [Assistant Project Manager](#) to join the Islands Centre for Net Zero team and support the delivery of the ten-year project across Orkney, Shetland, and the Outer Hebrides. Applications are due 12 September 2023.

PNNL is also seeking [Post Bachelor Research Associate - Marine Technology Electrical Engineer](#) to join a multidisciplinary team of engineers and scientists developing and assessing technology for the marine environment. Applications are due 24 September 2023.

RWE Renewables' U.S. Offshore Development Team is looking for a [California/West Coast Fisheries Liaison](#) to support the development of floating offshore wind project opportunities in the U.S. and lead engagement with all relevant fisheries stakeholders.

Upcoming Events

Upcoming Webinars

The University of Oslo, Department of Energy and Resources Law, and the Catholic University of Portugal, in collaboration with the NorthWind Research Centre, are hosting a webinar, “[Floating offshore wind permitting: comparative approach between Norway and Portugal](#)”, on 7 September 2023 from 10:30am-12:00pm CEST (8:30-11:00am UTC).

The International Energy Agency's Ocean Energy Systems (IEA-OES) is hosting a webinar, “[Ocean Energy Outlook in the USA & Canada](#)”, on 12 September 2023 at 7:00-8:00am PDT (2:00-3:00pm UTC). The webinar will explore the latest advancements, projects, and key policies in these countries' ocean energy sectors and introduce to a new tool supported by IEA-OES, showcasing global ocean energy projects. 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](#).

The National Renewable Energy Laboratory (NREL) and Renewable Energy Wildlife Institute (REWI) are hosting a webinar series on [Compensatory Mitigation for Land-Based Wind Energy](#). The first webinar, “Compensatory Mitigation: Regulatory Landscape”, will take place on 13 September 2023 from 3:00-4:00pm EDT (7:00-8:00pm UTC). Register [here](#).

OES-Environmental is hosting a public webinar, “[Coordinating and Disseminating Research on Environmental Effects of Marine Renewable Energy](#)” from 8:00-9:30am PDT (3:00-4:30pm UTC) on 28 September 2023. During the webinar, the team will provide updates on progress and what's to come in the 2024 State of the Science report, and then be joined by two presenters to

highlight research on underwater noise and collision risk, as well as practical applications of OES-Environmental resources. Register [here](#).

The Tethys team is hosting a webinar, “[Introducing Offshore Wind Environmental Metadata on Tethys](#)”, on 10 October 2023 from 8:00-8:30am PDT (3:00-3:30pm UTC). The webinar will include a live demonstration of the new tool, which features information on the environmental effects of offshore wind energy projects around the world, and detail how offshore wind project developers can contribute. Register [here](#).

Upcoming Conferences

RenewableUK and Scottish Renewables are hosting [Floating Offshore Wind 2023](#) on 4-5 October 2023 in Aberdeen, Scotland. Register [here](#).

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

Upcoming Workshops

PNNL and the Atlantic Marine Energy Center (AMEC) are hosting two Stakeholder Workshops on Environmental Effects of Marine Energy on [3 October 2023 from 8:30-12:30 EDT](#) and on [7 October 2023 from 12-4 EDT](#), before and after [UMERC](#) in Durham, New Hampshire. The workshops will discuss the effects of tidal energy on the marine environment. Anyone is welcome to attend the workshops, but online registration is encouraged. Additional information on the workshops will be available on the event pages soon, and shared via emails with those who register.

The Argentine Network of Marine Energies, in collaboration with the Center for Ocean Energy Research (COER), Maynooth University, Ireland, and the Marine Offshore Renewable Energy Lab are hosting the [8th Wave Energy Workshop](#) in conjunction with the 2023 Argentine Meeting on Marine Energies (ENAEM 2023) on 6-8 November 2023 in Buenos Aires, Argentina.

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

[Effects of anthropogenic magnetic fields on the behavior of a major predator of the intertidal and subtidal zones, the velvet crab *Necora puber* – Albert et al. 2023](#)

With the progress of the offshore renewable energy sector and electrical interconnection projects, a substantial rise in the number of submarine power cables is expected soon. Such cables emit either alternating or direct current magnetic fields whose impact on

marine invertebrates is currently unknown and hardly studied. In this context, this study aimed to assess potential short-term exposure (30 min) effects of both alternating and direct magnetic fields of increasing intensity (72–304 μT) on the behavior of the high-ecological value velvet crab (*Necora puber*). Three experiments were designed to evaluate whether the strongest magnetic field intensities induce crabs' attraction or repulsion responses, and whether foraging and sheltering behaviors may be modified.

[A New Miniaturized Acoustic Transmitter for Marine Animal Tracking](#) – Li et al. 2023

Most marine renewable energy (MRE) technologies are still in their infancy. Many uncertainties remain regarding MRE systems' impacts on the marine environment and species where they are deployed, which is one of the major hurdles for these systems to be widely adopted at a commercial scale. Currently, the primary technologies to monitor marine animals' behavior around existing or potential MRE deployment sites are optical and acoustic imaging. However, these methods cannot identify individual animals and thus are less useful in identifying protected species and studying their behavior. Implantable acoustic transmitters with unique identification codes could serve as a complementary technology. Recently, we developed a new miniaturized acoustic transmitter that offers a significantly improved signal strength and service life in a smaller and lighter package, compared to the existing technologies.

[Recording the Magnetic Field Produced by an Undersea Energy Generating Device: A Low-Cost Alternative](#) – Luna et al. 2023

This work describes the characteristics of a device capable of detecting the magnetic field generated by a submerged electrical conductor. This low-cost apparatus is based on the open-source Arduino platform and offers the possibility of monitoring magnetic fields generated by undersea cables. Measuring magnetic fields generated by undersea cables facilitates the development of technologies that will harness marine energy potential. The research is based on published parameters of magnetic field values generated by existing submarine cables. A coil was built to simulate an approximate magnetic field at 10 mT. The magnetic field generated by the coil was used as a reference standard. The device developed has a measurement probe built with an array of SS49E Hall effect sensors placed in a straight line and separated 5 cm from each other.

Wind Energy

[Responsible Practices for Regional Wildlife Monitoring and Research in Relation to Offshore Wind Energy Development](#) – Regional Synthesis Workgroup of the Environmental Technical Working Group 2023

Offshore wind energy (OSW) development activities are expanding rapidly in the eastern U.S. and regional coordination of environmental research efforts is needed to improve our understanding of OSW effects on wildlife populations and marine ecosystems. To address this need, in 2021 the Offshore Wind Environmental Technical Working Group (E-TWG) formed the Regional Synthesis Workgroup, comprised of subject matter

experts, to develop recommendations for regional environmental research and monitoring related to OSW development. The Regional Synthesis Workgroup, in turn, recognized that research and monitoring efforts at multiple spatial and temporal scales can contribute to a broader understanding of the environmental effects and impacts of OSW development. The recommendations, developed with extensive stakeholder feedback, are intended to support environmental research in the U.S. Atlantic, but have broad applicability to research efforts in all regions of offshore wind development.

[Economic Impacts of Curtailing Wind Turbine Operations for the Protection of Bat Populations in Ontario](#) – Thurber et al. 2023

Wind energy is a growing industry in Canada to meet the demand for a renewable supply of energy. However, wind turbine operation represents a high mortality risk for bat populations, and regulators often require that steps are taken to mitigate this risk. The result is concern among operators about lost revenue potential. This study was, therefore, designed to estimate the theoretical financial impact of curtailing turbine operations to mitigate for bat mortality for all wind farms that were constructed and operating in Ontario, Canada, as of 1 January 2020 (n = 87 wind farms). We used generalized linear modelling to test whether the variability in production loss was predicted based on factors related to turbine design and site wind speeds.

[U.S. Offshore Wind Energy Noise Reduction Questionnaire Results and Recommendations](#) – Farr and Ryan 2023

At the direction of the U.S. DOE's WETO, the National Renewable Energy Laboratory and the Pacific Northwest National Laboratory distributed an online questionnaire to gather feedback on research and development priorities regarding underwater noise associated with fixed-bottom offshore wind turbine installations in U.S. waters. This report summarizes the results of the questionnaire. Research, development, and deployment of noise abatement and mitigation technologies and research to assess disturbance on marine species and habitats were both high priorities in the short and long term and would be most impactful with an investment of \$10–\$20 million. Additionally, resources focused on data access, standardization, and model consistency, such as efforts to improve and develop sound propagation models, including the incorporation of mitigating measures, would have a high impact at either funding level.

News & Press Releases

Marine Energy

[DOE Announces Upcoming \\$14.5 Million Funding Opportunity to Advance Marine Energy Research at U.S. Colleges and Universities](#) – U.S. DOE

The U.S. DOE's WPTO recently published a notice of intent to issue a \$14.5 million funding opportunity to support marine energy research at U.S. institutions of higher

education, including minority-serving institutions. The proposed opportunity is expected to fund projects through four topic areas focused on: (1) Generating publicly available data and information on cost reductions and performance improvements of marine energy devices for use by the industry and other stakeholders; (2) Assessing and advancing potential synergies between floating offshore wind and/or marine energy and aquaculture development and exploring promising pathways to maximize benefits; (3) Supporting undergraduate senior design and/or research projects in marine energy; and (4) An open topic area where applicants can propose activities that address the needs of the marine energy industry not covered by other topic areas.

Test programme success for collaborative renewable subsea power project, extension secured – OGV Energy

A collaborative renewable subsea power project has successfully completed its initial four-month test programme in the UK North Sea, proving that a subsea battery storage system can reliably power subsea equipment through being recharged by a wave energy device. Deployed in the waters five kilometres off the East coast of Orkney, Scotland in February 2023, the Blue X wave energy converter – built by Edinburgh company Mocean Energy – was connected with a Halo underwater battery developed by Aberdeen intelligent energy management specialists Verlume in a ‘first-of-its-kind’ project. The four-month Renewables for Subsea Power test programme was devised to prove the concept of using renewables to power subsea equipment, employing intelligent subsea battery storage to manage the inherent intermittency and deliver a continuous power output through the batteries.

Minesto completes build and functional testing of sea-bed connection system for the 1.2-Megawatt powerplant Dragon 12 – Minesto

Minesto has completed build and functional testing of sea-bed connection system for the 1.2-Megawatt power plant *Dragon 12*. The unique connection system, enabling one of the fastest launch and recovery operation in marine energy by “one-stab” operation, is now ready for installation. The *Dragon 12* connection system is a scale-up and further enhancement of Minesto’s unique and verified LARS (Launch & Recovery System) technology, a principle applied and proven by Minesto since 2020. The system is remotely operated and controlled from the surface vessel by lowering the LARS frame attached to the male connector into the female connector in the foundation. In the bottom joint, the power, data and strength connections are all combined.

Aker Solutions, Mocean enter wave energy MoU for subsea tiebacks – Offshore Magazine

Mocean Energy and Aker Solutions Subsea have signed a memorandum of understanding (MoU) to investigate how locally generated wave energy could support tiebacks of stranded reserves to offshore oil and gas hubs. The cooperation would combine Mocean’s wave energy conversion and Aker’s subsea integrated solutions, targeting development of a cost-effective and reliable power source for subsea infrastructure. A pilot project could follow in UK waters within two years. Terms of the MoU include feasibility, FEED and

concept studies for wave-powered tiebacks. The studies will seek to identify the optimum (including environmentally efficient) methods for developing marginal reserves, especially in combination with energy storage.

Global OTEC partners with French firm to develop its floating OTEC platform – Global OTEC

UK-based company Global OTEC has signed a memorandum of understanding with France-based Enogia to develop key subsystems of the first commercial-scale ocean thermal energy conversion (OTEC) floating platforms. Under the MoU, the companies will collaborate on the development of Dominique, the 1.5 MW floating OTEC platform that will be installed in São Tomé and Príncipe, in the Gulf of Guinea, Africa, in 2025. Global OTEC will deploy its expertise in ocean energy and OTEC projects as both a technology and project developer. On the other hand, Enogia will contribute with its competence in turbine and organic rankine cycle manufacturing. The electricity generated from Dominique will power local communities and businesses in São Tomé and Príncipe, with the capacity being expanded with the implementation of subsequent platforms.

Wind Energy

The world's largest floating offshore wind farm officially opened – Equinor

The Hywind Tampen wind farm was opened today by Crown Prince Haakon of Norway. Gullfaks and Snorre are the first oil and gas fields in the world to receive power from offshore wind, reducing CO2 emissions. The wind farm consists of 11 wind turbines based on the floating Hywind concept, developed by Equinor. Hywind Tampen has a system capacity of 88 MW and is expected to cover about 35 percent of the annual need for electricity on the five platforms Snorre A and B and Gullfaks A, B and C. The wind farm is managed from Equinor's office location in Bergen. The project has significant cost improvements compared to the Hywind Scotland floating offshore wind farm, which was the world's first floating offshore wind farm.

RWE Grows U.S. Offshore Wind Development Portfolio by 2-Gigawatt in BOEM's First-Ever Offshore Wind Lease Auction in the Gulf of Mexico – RWE

RWE, a leading offshore wind company globally, has been successful in the U.S. Department of the Interior's (DOI) first-ever Gulf of Mexico offshore wind lease auction, securing Lease Area OCS-G 37334 with a winning bid of USD 5.6 million. The DOI's Bureau of Ocean Energy Management (BOEM) led the auction which consisted of three lease areas with the potential to host a total installed capacity of over 3.7 gigawatts (GW) in offshore wind. RWE's awarded site is 44 miles off the coast of Louisiana and has water depths of 10-25 meters. The lease area has the potential to host up to 2 GW of new capacity, enough to power over 350,000 U.S. homes with clean energy. The project is expected to be in operation by the mid-2030s, contingent upon permitting timelines.

Australian Government announces two more offshore wind consultations at GWEC's APAC Summit in Melbourne – Global Wind Energy Council (GWEC)

Chris Bowen MP, Australia's Minister for Climate Change and Energy, recently announced at GWEC's Asia Pacific (APAC) Offshore Wind & Green Hydrogen 2023 Summit the next two rounds of consultation for offshore wind zones in the country. The Bass Straight region and the Perth/Bunbury zone consultations will begin in October and November, respectively. Minister Bowen told the conference that this announcement, "puts us firmly on track to have all six areas declared by the first half of next year." The inaugural Summit is focused on fostering collaboration across the industry, with Chris Bowen acknowledging that he was, "providing this roadmap today because I know it will give industry certainty about the immediate path ahead." The announcement at the APAC Summit means Australia has progressed all six of its consultations within twelve months.

Biden-Harris Administration Approves Fourth Major Offshore Wind Project – U.S. Department of Interior

The Department of the Interior recently announced its approval of the Revolution Wind project. Located about 15 nautical miles southeast of Point Judith, Rhode Island, the project will have an estimated capacity of 704 megawatts of clean energy, capable of powering nearly 250,000 homes. The project is expected to create an estimated 1,200 local jobs during the construction phase. The announcement marks another step in fulfilling President Biden's goal to deploy 30 gigawatts of offshore wind energy capacity by 2030. This is the Department's fourth approval of a commercial-scale, offshore wind energy project, joining the Vineyard Wind project offshore Massachusetts, the South Fork Wind project offshore Rhode Island and New York, and the Ocean Wind 1 project offshore New Jersey.

Ørsted Partners with The Conservation Fund and The Nature Conservancy to Protect and Restore Native Tallgrass Prairie near Sunflower Wind Farm – Ørsted

Ørsted recently announced an industry-leading biodiversity initiative near its Sunflower Wind Farm. Ørsted is donating more than \$2 million to The Conservation Fund and The Nature Conservancy (TNC) to support voluntary land conservation and restoration activities on up to 3,000 acres of tallgrass prairie habitat within the Flint Hills. Sunflower Wind Farm is a 200MW wind farm located in Marion County, Kansas, that will be operational in fall of 2023. The initiative advances Ørsted's commitment to building clean energy projects in harmony with nature and creating a net-positive biodiversity impact for all new projects starting in 2030. Ørsted worked with TNC to assess potential biodiversity impacts of Sunflower Wind Farm, identify conservation strategies and build an implementation program to achieve its net-positive biodiversity ambition.