



26 May 2023

[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

[Tethys Wind User Review](#)

We want your feedback! Please complete this year's short [Tethys Wind User Review survey](#) by 9 June 2023 to help us understand how the wind-wildlife community uses Tethys and determine how we can continue to expand and improve the site!

[Collegiate Wind Competition](#)

The U.S. Department of Energy (DOE) is now accepting applications from interdisciplinary teams of undergraduate and graduate students for the [2024 Collegiate Wind Competition](#). The competition will take place in three phases over the course of the 2023-2024 school year and will culminate at a final event in spring 2024. Interested schools should apply by 15 June 2023.

[BOEM Seeking Comments](#)

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking public comments on its intent to prepare an Environmental Assessment for a [Gulf of Maine Offshore Wind Research Lease](#) (due 5 June 2023), its [Gulf of Maine Call for Information and Nominations](#) for commercial wind energy development (due 12 June 2023), and the [draft Environmental Impact Statement](#) for two wind energy projects offshore New Jersey (due 3 July 2023).

[Calls for Abstracts](#)

The [Call for Abstracts](#) for the Offshore WINDPOWER 2023 is open through 31 May 2023. Offshore WINDPOWER 2023 will take place on 3-4 October 2023 in Boston, Massachusetts, U.S.

The [Call for Extended Abstracts](#) for the [Pan American Marine Energy Conference \(PAMEC 2024\)](#) is now open through 26 June 2023. PAMEC 2024 will take place on 22-24 January 2024 in Barranquilla, Columbia.

The [Call for Abstracts](#) for the International Conference on Oceanography and 19th French-Japanese Symposium of Oceanography ([COAST CAEN](#)) is open through 7 July 2023. The event will take place on 24-27 October 2023 in Caen, France.

Funding & Testing Opportunities

The U.S. DOE Water Power Technologies Office (WPTO) has released a \$45 million [funding opportunity](#) to support two projects focused on advancing the tidal and current energy industry, including a pilot technology demonstration site in state waters ([topic area 1](#)) and a community-led development project ([topic area 2](#)). Concept papers are due by 5 June 2023 and 13 July 2023, respectively. WPTO is hosting an [informational webinar](#) on 30 May 2023 at 3:00pm EDT (7:00pm UTC).

The U.S. DOE has released a \$4.75 million [funding opportunity](#) that will create one or more university-led Centers of Excellence to increase offshore wind expertise at U.S. universities; develop partnerships to address key offshore wind development challenges; and educate the next generation of offshore wind experts in the United States. Concept papers are due by 8 June 2023.

The Marine Alliance for Science and Technology for Scotland (MASTS) has launched a [Call for Proposals from Early Career Researchers](#) to lead research on Nature Enhancement at Marine Offshore Energy Sites (NEMOES). Proposal submissions are due 9 June 2023.

The U.S. Ocean Energy Safety Institute has launched a [Request for Proposals](#) focused on marine and offshore wind energy solutions that enhance safety, security, and sustainability. Submissions are due 19 June 2023 (for marine energy) and 24 July 2023 (for wind energy).

The U.S. Testing Expertise and Access for Marine Energy Research (TEAMER) program, sponsored by the DOE's WPTO, is now accepting [Request for Technical Support \(RFTS\) 10](#) applications until 7 July 2023. Applications for Open Water Support may be submitted at any time and will be reviewed as soon as possible.

The California Ocean Protection Council (OPC) recently launched an [Offshore Wind Environmental Monitoring Guidance Request for Proposals](#). OPC is seeking applications to develop comprehensive environmental monitoring guidance for offshore wind development in California. Full proposals are due 31 July 2023.

Student & Employment Opportunities

The California Department of Fish and Wildlife is seeking a [Renewable Energy Environmental Review and Permitting Coordinator](#) to coordinate the Department's environmental review and permitting of renewable energy projects. Applications are due 6 June 2023.

The University of Aberdeen is advertising a [funded PhD project](#) (for UK students only) focused on characterizing and simulating entanglement scenarios between various types of fishing gear and floating offshore wind technology. Applications are due 14 June 2023.

Upcoming Events

Upcoming Webinars

Bat Conservation International (BCI) is hosting a webinar, “The State of North America's Bats”, on 30 May 2023 at 1:00pm CDT (6:00pm UTC). During the webinar, Dr. Amanda Adams, Director of Research Coordination at BCI, will provide an overview of the findings of the recently released [State of the Bats of North America report](#). Register [here](#).

The U.S. Offshore Wind Synthesis of Environmental Effects Research ([SEER](#)) project is hosting a free, public webinar series to share the latest research on the potential environmental effects of offshore wind energy development, including minimization and monitoring strategies. The first webinar, “[Regional Surveys to Improve Understanding of Ecosystems and Relevance to Offshore Wind Energy Development](#)”, will take place on 31 May 2023 from 8:00-9:00am PDT (3:00-4:00pm UTC). Register [here](#).

The Regional Wildlife Science Collaborative for Offshore Wind ([RWSC](#)) is hosting a webinar on 22 June 2023 at 1:00pm EDT (5:00pm UTC) to share information about the launch of the RWSC Draft Science Plan. Register [here](#).

The [U.S. National Academies of Sciences, Engineering and Medicine’s Committee on Evaluation of Hydrodynamic Modeling and Implications for Offshore Wind Development Nantucket Shoals](#) will hold an open session on 1 June 2023, from 9:00am-5:30pm EDT (1:00pm-9:30pm UTC). The meeting will be held in person in Washington, DC, U.S., and will have the option to join remotely. Register [here](#).

ETIP Ocean is also hosting a webinar, “Resources & tools for faster permitting of ocean energy”, on 5 June 2023 at 4:00pm CEST (2:00pm UTC). During the webinar, OES-Environmental will present the guidance and resources currently available and how both regulators and developers can use this information to accelerate the permitting of ocean energy. Register [here](#).

Upcoming Workshop

As part of the Ocean Renewable Energy Conference ([OREC 2023](#)), OES-Environmental is hosting a [workshop](#) on 22 June 2023 to identify the key components of effective and efficient programs for environmental monitoring around marine energy projects, and explore whether

there are elements that could be standardized among projects nationwide and worldwide. OREC will take place on 21-22 June 2023 in Portland, Oregon, U.S.

Upcoming Conferences

The Partnership for Research in Marine Renewable Energy (PRIMaRE) is hosting the [10th PRIMaRE Conference](#) on 27-28 June 2023 in Bath, England. Register [here](#).

The University Marine Energy Research Community (UMERC) is organizing the [second annual conference](#) in Durham, New Hampshire, U.S., on 4-6 October 2023. Register [here](#).

The [15th European Wave and Tidal Energy Conference](#) will take place in Bilbao, Spain, on 3-7 September 2023. Register [here](#). The deadline for early bird registration is 7 June 2023.

New Documents on Tethys

[Tethys](#) hosts thousands of documents on the environmental effects of marine and wind (land-based and offshore) energy, including journal articles, conference papers, and reports.

Marine Energy

[Fish response to the presence of hydrokinetic turbines as a sustainable energy solution](#) – Müller et al. 2023

Hydrokinetic turbines such as vertical axis turbines (VATs) may provide decentralised, clean, sustainable energy for remote communities that lack access to the main energy grid or renewable resources. As traditional hydropower adversely alters aquatic ecosystems, it is essential to evaluate the environmental consequences of deploying VATs in riverine ecosystems to meet current and future energy needs. This study explores the implications of VATs on fish movement by observing fish swimming behaviour under two discharges, turbine operation states, and cross-sections confinements using scaled laboratory experiments. Our findings reveal that for cross-sectional confined conditions neither discharge, turbine presence, nor device operation, prevented fish from passing around and through the turbine both in the up- and downstream directions.

[A socio-technical assessment of marine renewable energy potential in coastal communities](#) – Kazimierczuk et al. 2023

Coastal communities face unique socio-ecological risks and vulnerabilities due to their geography and related resource dependencies. Marine renewable energy (MRE) is one promising solution for augmenting coastal resilience and environmental sustainability while increasing energy security, energy affordability, and socioeconomic benefits. The socio-technical nature of energy transitions more broadly necessitates place-based and multidisciplinary analyses to gain a full picture of the needs of communities. This article uses potential MRE development (specifically tidal energy) in two coastal communities

as a lens to explore how social perceptions and MRE's technical potential might be integrated to improve alignment between community values and energy development.

No Observed Effects of Subsea Renewable Energy Infrastructure on Benthic Environments **– Smyth & Kregting 2023**

For the tidal energy industry to move forward to commercialisation, understanding the interaction between the environment and tidal energy converters (TEC) is essential. The benthic environment may be particularly vulnerable to development by changing the existing physical and ecological characteristics. To assess measurable changes of the infrastructural and operation activity of the Deep Green subsea TEC known as the kite, developed by Minesto, benthic surveys were carried out in the Narrows, Strangford Lough, Northern Ireland. At the Minesto site and two other locations, scientific divers carried out circular cardinal-direction benthic camera surveys prior to and after five years of operation. A diverse assemblage of sessile, vagile and mobile species associated with substrate types were identified.

Wind Energy

Environmental Impacts of Offshore Wind Farms in the Belgian Part of the North Sea: Getting ready for offshore wind farm expansion in the North Sea – Degraer et al. 2022

Since 2005, the Belgian offshore wind farm environmental impact monitoring program, WinMon.BE, generates baseline ecological information in the Belgian offshore renewable energy zone and beyond, and investigates the impacts at various spatio-temporal scales. This WinMon.BE report based on data collected up to and including 2021, focuses on selected topics to get ready for offshore wind farm expansion in the Belgian part of the North Sea, by touching upon new insights into (1) spatial distribution patterns (epibenthos, hyperbenthos and fish of sandy bottoms) and the identification of areas sensitive to offshore wind farms (seabirds) and (2) ‘promoting the good’ (artificial hard substrate fouling communities) and ‘mitigating the bad’ (seabird collision and harbor porpoise disturbance).

Seasonal patterns of bird and bat collision fatalities at wind turbines – Lloyd et al. 2023

Information on when birds and bats die from collisions with wind turbines can help refine efforts to minimize fatalities via curtailment of energy productions and can offer insight into the risk factors associated with collision fatalities. Using data pooled from 114 post-construction monitoring studies conducted at wind facilities across the United States, we described seasonal patterns of fatalities among birds and bats. Bat fatalities peaked in the fall. Seasonal patterns of bird fatalities varied among guilds. Our results highlight the value of pooling data to develop science-based solutions to reduce conflicts between wind-energy development and wildlife but also emphasize the need for more extensive data and standardization of post-construction monitoring to support more robust inferences regarding wind-wildlife interactions and collision risk.

U.S. Offshore Wind Energy Noise Reduction Associated with Installation of Fixed-Bottom Foundations: Workshop Report – Green et al. 2023

The U.S. Department of Energy’s Wind Energy Technologies Office funded the National Renewable Energy Laboratory and the Pacific Northwest National Laboratory to organize, host, and facilitate a virtual workshop in December 2022. The goal of the workshop was to gather input from the offshore wind energy community on noise reduction strategies for the installation of fixed-bottom offshore wind turbines in U.S. waters across multiple regions, including the Atlantic Coast, Gulf of Mexico, and Great Lakes, to inform recommendations on future research. This report provides an overview of the workshop goals and scope, reviews the pre-workshop activities, presents brief summaries of participant feedback, and concludes with detailed research themes and recommendations for future investments.

News & Press Releases

Marine Energy

C-Power wraps up in-harbor trials of SeaRAY device – Offshore Energy

US-based marine energy company C-Power has completed in-harbor operational trials of the SeaRAY autonomous offshore power system (AOPS) ahead of its deployment offshore Hawaii. C-Power’s 2kW SeaRAY AOPS is set for testing at US Navy’s Wave Energy Test Site (WETS), according to the company. SeaRAY’s uses two floats, one on each side, that roll with ocean waves and connect to a power take-off (PTO) system. That system then runs a generator, which connects to batteries on the seafloor. In Hawaii, project partners, including Saab, one of the world-leading companies in electric underwater robotics, the National Oceanic and Atmospheric Administration (NOAA), and BioSonics, will pair the SeaRAY AOPS with their electronics, which collect data on methane and carbon levels, fish activity, and more.

Global Ocean Energy Alliance Approved by Pacific Leaders Highlighting Global OTEC Projects – Global OTEC

Leaders from 20 Pacific Island Countries and Territories (PICTs) announced that they approved the Global Ocean Energy Alliance (GLOEA), highlighting the implementation of the 1.5MW Ocean Thermal Energy Conversion (OTEC) platform being developed for deployment in São Tomé and Príncipe, in partnership with Global OTEC, as the basis for the implementation of an Ocean Energy Programme in the Pacific. The announcement was made during the Fifth Pacific Regional Energy and Transport Ministers’ Meeting (PRETMM), hosted by the Government of Vanuatu, in Port Vila, from 8-12 May 2023, under the theme of “Accelerating Decarbonisation in the Blue Pacific”. A major outcome of the meeting was an agreement to develop an ocean readiness programme

preparing the PICTs for future ocean renewable energy technologies. This measure aims to mitigate barriers and brings latest innovations to the Pacific.

Tidal energy pilot in Korea completes two years of clean power generation – Offshore Energy

The Uldolmok Tidal Power Station in South Korea has completed two years of electricity generation, exploiting the tides of the Myeongnyang Strait at Jindo Island. The Uldolmok Tidal Power Station is now integrated in the Korea Tidal Current Energy Center, led by the Korean Institute of Ocean Science and Technology (KIOST) and being used as an open test site for tidal current energy turbines. According to the report from International Energy Agency's Ocean Energy Systems, a cross-flow Helical turbine with 80kW rated output is currently installed at the site. The report further states that from September 14, 2021, until May 15, 2022, a total of 8.88MWh of electricity was generated. KIOST is also developing a tidal current energy converter hybrid system for remote off-grid islands utilizing dual vertical axis Darrius turbines with a rated power of 100kW.

As tidal power firms ebb, Fisheries minister strikes task force to smooth regulation – The Canadian Press

The Canadian government is creating a task force to clarify regulations for projects attempting to harness the tidal energy of the Bay of Fundy, after a key player sought bankruptcy protection last week — and blamed Ottawa. Following recent meetings with representatives from the tidal-power industry, federal Fisheries Minister Joyce Murray said government officials and the private sector would make recommendations on how her department could better communicate environmental requirements and reduce turnaround times for approvals. Last Thursday, U.K.-based Sustainable Marine Energy wound up operations, with its chief executive, Jason Hayman, estimating up to \$40 million in private losses and predicting a chill on investment in Canadian tidal projects. Hayman has said that despite peer-reviewed science suggesting fish tend to avoid the rotating underwater blades of tidal turbines, the Fisheries Department spent several years jousting with his firm over the details, timing and scope of his proposals, and his investors ended the project.

EEL Energy gets green light to deploy biomimetic tidal energy turbines in France – Offshore Energy

EEL Energy has secured a permit from the French navigation authority Voies navigables de France (VNF) to deploy its tidal energy turbine in the river Rhône near Lyon, that will later be accompanied with three additional devices. The design of the tidal energy turbine is based on the undulating membrane which mimics the movement of the fish to produce energy. The tests will be conducted at a dedicated site between Lyon's communes of Caluire-et-Cuire and Villeurbanne, with the first device expected to be deployed by the end of June 2023. With the authorization from VNF and the agreement with the local authorities (the Metropolis of Lyon and the commune of Caluire-et-Cuire), EEL Energy will gradually deploy four biomimetic tidal turbines to form an in-river tidal energy farm.

Wind Energy

[Dutch offshore wind farms shut down to allow bird migration](#) – Energy Monitor

In an international first, two offshore wind parks were shut down for four hours on 13 May to allow the safe passage of migrating birds above the North Sea. Turbines at wind farms in Borssele and Egmond aan Zee were halted for four hours on Saturday after a massive bird migration over the North Sea was predicted. The shutdown, an international first, was a test run for a new government policy to allow migratory birds safe passage across North Sea offshore wind parks. “Twice a year, in spring and autumn, millions of birds migrate over the North Sea on some nights,” said Tim van Oijen from NGO Netherlands Bird Protection, in a press release. “With the growth in the number of wind farms in the North Sea, it is extremely important that we do this in the most ecologically responsible way possible, with minimal impact on the North Sea. The temporary shutdown of the turbines during bird migration contributes to this.”

[The future of wind energy in the US is floating turbines as tall as 30 Rock](#) – CNN

The first, full-sized floating offshore wind turbine in the United States will tower 850 feet above the waves in the Gulf of Maine – roughly as tall as New York City’s famed 30 Rockefeller Plaza. The gigantic machine, with 774-foot diameter blades and tethered to the seabed with thick metal cables, is planned to be put into the water 20 miles south of Maine’s tiny Monhegan Island by the end of the decade. It is expected to generate up to 15 megawatts of electricity – enough to power thousands of homes – and will be just one in an array of 10 such turbines that would together produce up to 144 megawatts of clean energy. The Maine turbine array will join the ranks of only around 20 deepwater “floaters” around the world, located mostly in Europe. Developers, government officials and experts say these floating turbines are the future of the wind energy industry and are eyeing projects that could each deliver clean electricity to 750,000 homes.

[Launch of DRACCAR, the first French Offshore Research Platform dedicated to Offshore Wind Energy, coupled with an Innovative €8.2 million R&D Programme](#) – France Énergies Marines

The French Channel coast, which already has highly developed human activities, is particularly concerned by the deployment of offshore wind farms. However, qualifying the effects of commercial wind farms on a local scale, and the cumulative impacts of the various uses of the sea on the environment on a coastline scale, remains a major research challenge. This offshore research platform is coupled with a large-scale multidisciplinary R&D programme with an initial budget of €8.2m. The programme, called DRACCAR, aims to improve understanding of the interactions between offshore wind energy and the environment, to optimise the design of wind turbines and to co-construct a permanent observation network of the maritime seafronts.

World's largest onshore wind turbine launched by Chinese manufacturer – Windpower Monthly

What is expected to be the world's largest onshore wind turbine – with a 12MW capacity – has been launched by Chinese wind turbine manufacturer Goldwind. The company announced two new turbine models – the GWH221-8.X-10 and GWH24X-12.X – in recognition of reaching 100GW of installed wind power capacity worldwide last month. With an anticipated 12MW capacity, the GWH24X-12.X is expected to be the largest onshore wind turbine once it is installed. On completion the 12MW turbine would surpass the largest offshore wind turbines currently being deployed at commercial scale. The largest turbine currently being installed on commercial wind power projects is General Electric's Halliade-X, which has a capacity of up to 14MW and is designed for offshore locations where larger turbines are generally preferred.

Hywind Tampen floating wind farm now delivering to second oil and gas field – Offshore Energy

Equinor's Hywind Tampen, the world's largest floating offshore wind farm in operation, has started delivering electricity to the Snorre oil and gas field in the Norwegian North Sea. The 88 MW Hywind Tampen delivered first power in November 2022. The electricity was delivered to the Gullfaks A platform. Now the wind farm is delivering electricity to the Snorre field as well, Equinor said in a social media post. Hywind Tampen is the first wind farm in the world that is supplying electricity to oil and gas platforms. The 11-turbine wind farm is expected to meet 35 per cent of the electrical power demand on the Gullfaks and Snorre fields. This will cut CO2 emissions from the fields by about 200,000 tonnes per year, according to Equinor.