



**12 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 26 May 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.

### [New BOEM ESP Hub](#)

The U.S. Bureau of Ocean Energy Management (BOEM) recently launched an online platform, the [Environmental Studies Program \(ESP\) Hub](#), to improve public access to its collection of ocean science research.

### [BOEM Seeking Comments](#)

The U.S. BOEM also recently announced its intent to prepare an [Environmental Assessment](#) for an offshore wind research lease in the Gulf of Maine, and is accepting public comments until 5

June 2023. BOEM is also seeking public comments on its [Gulf of Maine Call for Information and Nominations](#) for commercial wind energy development by 12 June 2023.

### Calls for Abstracts

The Call for Abstracts for the [University Marine Energy Research Community \(UMERC\) 2023 Conference](#) is now open through 12 May 2023. UMERC 2023 will take place on 4-6 October 2023 in Durham, New Hampshire, U.S. Apply for travel/registration support by 15 June 2023.

The Call for Abstracts is now open for the [Structures in the Marine Environment \(SIME\) 2023 Conference](#) until 12 May 2023. SIME will take place on 28 June 2023 in Glasgow, Scotland.

The [Call for Research Posters](#) for [Seanergy 2023](#) is open until 14 May 2023. Seanergy 2023 will take place from 20-21 June 2023 in Paris, France.

The [Call for Abstracts](#) for the [North American Wind Energy Academy \(NAWEA\)/WindTech 2023 Conference](#) is now open through 19 May 2023. NAWEA/WindTech will take place from 30 October to 1 November 2023 in Broomfield, Colorado, U.S.

The [Call for Sessions and Town Hall Proposals](#) for [Ocean Sciences Meeting 2024](#) is now open through 24 May 2023. Ocean Sciences Meeting 2024 will take place from 18-23 February 2024 in New Orleans, Louisiana, U.S. and online.

The [Call for Abstracts](#) for the International Conference on Oceanography and 19th French-Japanese Symposium of Oceanography ([COAST CAEN](#)) is open through 31 May 2023. The event will take place on 24-27 October 2023 in Caen, France.

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.

### Funding & Testing Opportunities

The U.S. DOE has opened applications for the [Energy Transitions Initiative Partnership Project \(ETIPP\)](#) for remote and island communities seeking technical assistance to transform their energy systems and increase energy resilience. Applications are due 19 May 2023.

The U.S. DOE's Office of Clean Energy Demonstrations recently announced \$15 million for the [Energizing Rural Communities Prize](#) to help rural communities build capacity needed for clean energy development and deployment. Submissions for the first round are due 24 May 2023.

The U.S. DOE recently 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 U.S. Ocean Energy Safety Institute has launched a [Request for Proposals](#) focused on marine energy solutions that enhance the safety, security, and sustainability of offshore wind and oil & gas operations; utility-scale marine energy solutions that enhance marine energy operations; and safe installation, operation, and maintenance solutions for offshore wind energy systems. [Marine energy submissions](#) are due 19 June 2023 and [wind energy submissions](#) are due 24 July 2023.

The U.S. Testing Expertise and Access for Marine Energy Research (TEAMER) program, sponsored by the DOE's Water Power Technologies Office (WPTO), is now accepting [Request for Technical Support \(RFTS\) 10](#) applications until 7 July 2023.

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

### Student & Employment Opportunities

The U.S. DOE's Office of Science has opened Fall term applications for the [Science Undergraduate Laboratory Internships \(SULI\)](#) and [Community College Internships \(CCI\)](#) programs, and [Visiting Faculty Program \(VFP\)](#). Applications are due on 25 May 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.

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## Upcoming Events

### Upcoming Webinars

The International Energy Agency Wind Task 34, Working Together to Resolve Environmental Effects of Wind Energy ([WREN](#)), is hosting a webinar, [Compensating the Impacts of Offshore Wind Energy on Birds](#), on 16 May 2023 from 11:00am-12:00pm EDT (3:00-4:00pm UTC). The webinar will provide an overview of the mitigation hierarchy, and discuss compensation measures from the United Kingdom and the United States. Register [here](#).

ETIP Ocean, the European Technology & Innovation Platform for Ocean Energy, is hosting a webinar, "[Reducing costs & risks: Practical experience in the application of standards](#)", on 22 May 2023 at 4:00pm CEST (2:00pm UTC). This webinar will explore ways to facilitate the use of specifications and showcase examples of practical use in ocean energy technology development. Register [here](#).

The Regional Synthesis Workgroup of the Offshore Wind Environmental Technical Working Group ([E-TWG](#)) is hosting a public webinar on 24 May 2023 from 11:00am-1:00pm EDT (3:00-

5:00pm UTC) to solicit stakeholder feedback on the draft document, “Responsible Practices for Regional Wildlife Monitoring and Research in Relation to Offshore Wind Energy Development”. A public feedback period will follow. 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](#).

### Upcoming Workshop

As part of the Ocean Renewable Energy Conference ([OREC 2023](#)), OES-Environmental is hosting a [workshop](#) 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. Early bird registration is available [here](#) before 12 May 2023.

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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**

#### **[The bigger picture: developing a low-cost graphical user interface to process drone imagery of tidal stream environments](#) – Slingsby et al. 2023**

Unmanned Aerial Vehicles (UAVs), or drones, offer the ability to collect cost-effective fine-scale imagery that is suitable for the capture of concurrent hydrodynamic and faunal data within tidal stream environments. This is a necessary stage of information gathering to inform tidal energy device design, advise control and maintenance strategies and better inform environmental consenting processes. For this study a total of sixty-three UAV surveys were undertaken within the Inner Sound of the Pentland Firth, Scotland, UK, over two 4-day periods in 2016 and 2018. The aims of this data collection effort were to characterise bathymetrically driven hydrodynamic features, comprising of kolk-boil distribution, presence, and area, as well as marine life such as seabird distributions, presence, and orientation relative to the flow. To achieve this, a method to extract quantifiable metrics from UAV imagery was required.

### **Safe passage for fish: The case for in-stream turbines – Brown et al. 2023**

Current hydro power turbine technology is reviewed regarding safe fish passage. Much of the literature has focused on dam turbine configurations, while some have recommended to develop in-stream turbines as an alternative and potentially more environmentally- and ecologically-friendly option. Throughout the literature, several key design parameters and considerations appear consistently, with which future turbines are recommended to be designed if installed near fish habitats or migratory routes. Design parameters and recommendations are compiled and examined here, and conclusions about future developments of hydro turbines are provided. Additionally, the criteria and considerations are applied to an in-stream turbine design, which is shown to exhibit fish-friendly operation over a wide range of riverine velocities with mitigated fish access to the tip region.

### **A Computational Platform to assess the Coastal Impact of the Marine Energy Farms – Rusu & Onea 2023**

The aim of the present work is to describe a computational platform (CSIAM-Computational System for Impact Assessment of the Marine energy farms) that can easily be implemented to identify the expected coastal impact of a particular marine energy farm. Several case studies are discussed in order to present the versatility of this tool, including coastal areas from Portugal (central part), Italy (Sardinia) or Romania (the Danube Delta), respectively. Various spatial configurations were considered, starting from individual wave energy converters, such as the Wave Dragon and ending with generic marine farms defined by particular absorption properties and distances from the shore. Furthermore, considering the ERA5 wave data (from 2012 to 2021), some extreme sea states were identified for each target area, the significant wave heights reaching maximum values of 8 m in the case of Iberian Peninsula.

## **Wind Energy**

### **Protecting avian wildlife for wind farm siting: The Screening Tool Proof of Concept – Salkanovic 2023**

Bird collisions with wind turbines continue to be a major problem within the wind industry. Developing scarecrow technologies and other, more advanced, multi-sensory bird monitoring systems on the market are paving the way to resolving this perplex dilemma. Environmental Impact Assessments are required by regulatory bodies to prove that a wind farm will not cause adverse impacts to vulnerable avian populations. The Screening Tool Proof of Concept is intended to help with permitting, and to reduce seasonal curtailment events resulting from annual migration. It revealed a positive correlation between bird activity hotspots for Pink-footed geese species and distance to crops. The most favorable crops were winter and spring cereals located at Klim Fjordholme Wind Farm in Northern Denmark.

**[A wind of change for soft-sediment infauna within operational offshore windfarms](#) – Lefaible et al. 2023**

In this study, “artificial reef” (AR) impacts of offshore windfarms (OWFs) on the surrounding soft-sediments were investigated. Benthic grab samples were collected at nearby (37.5 m) and distant (500 or 350 m) positions from turbines of two Belgian OWFs (Belwind: monopiles and C-Power: jackets). Higher macrobenthos abundance and species richness were found nearby jacket foundations of C-Power compared to distant positions and differences were most pronounced within deeper sediments (i.e., gullies between sandbanks) at intermediate levels of fine sand fractions (10–20%) and total organic matter (0.5–0.9%). Strong benthic enrichment was also linked with higher fine sand fractions (>20%) near the jackets. Moreover, nearby sediments showed higher occurrences of coastal species and habitat diversification was promoted by *Mytilus edulis* shell debris and alive organisms (“biofouling drop-offs”).

**[Wind energy and noise: Forecasting the future sounds of wind energy projects and facilitating Dutch community participation](#) – Solman et al. 2023**

This paper presents a case of a digital device – a noise app – employed by a wind farm operator as a response to growing noise annoyance by residents living next to their wind farm in the Netherlands. This noise app communicates predicted sound levels to the residents and monitors their noise annoyance. We analyse the noise app as a digital framing device that governs concerns around wind turbine sound through three processes: *capturing*, *channelling* and *managing*. We show how in the process of *capturing*, the app uses a particular definition of ‘the public’ and construes ‘noise’ as a matter of concern. We use the term *channelling* to highlight who is involved in the interpretation of the data about annoyance, and how certain conclusions come to be seen as legitimate. Finally, we discuss how in the process of *managing*, specific kinds of solutions are proposed that fit with this problem definition.

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## News & Press Releases

### Marine Energy

**[OceanEnergy Sign Up to EMEC Wave Energy Test Berth](#) – European Marine Energy Centre (EMEC)**

Irish wave energy developer, OceanEnergy, has signed up to demonstrate its OE35 floating wave energy converter at EMEC in Orkney, Scotland. OceanEnergy intends to demonstrate the OE35 over two winter periods from 2024 at EMEC’s Billia Croo wave energy test site off the west coast of Orkney, Scotland. The OE35 incorporates well-proven ship-building techniques and has only one moving part which is above sea level, increasing survivability, reliability and availability. EMEC will support OceanEnergy with environmental monitoring. A series of field campaigns will include underwater and airborne acoustics, biophysical assessment of wave dynamics, fish aggregation and

seabird analysis to assess the potential interactions between local species and the operation of the technology.

### **Scots start exploring green hydrogen production using tidal energy – Offshore Energy**

Scottish company Nova Innovation is heading up a consortium to look at the potential of producing green hydrogen and oxygen from its tidal energy projects in Shetland. The Scottish Government's Emerging Energy Technologies Fund – Hydrogen Innovation Scheme will fund the GHOST Project, short for Green Hydrogen and Oxygen Supply from Tidal Energy. The study will explore the use of hydrogen and oxygen for transport, domestic heating and industry in Shetland including the SaxaVord Space Centre. The contract will see Nova Innovation and partners the University of Strathclyde, Shetland Islands Council, and Ricardo Energy, investigate potential markets for both the hydrogen and oxygen produced from electrolysis using Scottish developer's tidal energy projects in Shetland.

### **ORPC and Shell Marine Renewable Program work together to initiate a Modular RivGen Power System demonstration in Lower Mississippi River – Ocean Renewable Power Company (ORPC)**

ORPC, an internationally recognized marine renewable energy developer whose power systems harness the energy of free-flowing rivers and tides, is working together with Shell Technology – Marine Renewable Program to initiate a Modular RivGen® Power System demonstration project in the Lower Mississippi River. The collaborative project represents an opportunity to showcase how the next generation of ORPC's proven hydrokinetic technology can provide highly predictable baseload electricity to help decarbonize onshore assets. Once deployed, the system can potentially support the electrification of Shell facilities, including providing power to EV chargers and supporting alternative fuels production. The initiation of the demonstration project builds off previous work completed by ORPC for Shell.

### **TIGER project is driving growth of tidal energy in UK and France – Tidal Stream Industry Energiser Project (TIGER)**

The Tidal Stream Industry Energiser Project (TIGER) that launched in 2019 to drive tidal energy growth in the UK and France, has successfully demonstrated the significant value tidal stream energy can bring to the future energy mix, economies and supply chains in both the UK and France. TIGER is the largest project funded by the Interreg France (Channel) England Programme, with €48.4 million invested to drive collaboration and cost reduction through tidal turbine installations in the UK and France. The project, led by the Offshore Renewable Energy (ORE) Catapult, has enabled installation of four new tidal stream energy devices at test sites in and around the Channel region, with a further 16 in development. This has created a total of 3.6 MW new tidal capacity, with a further 57.4 MW in the pipeline. Check out the video [here](#).

## **TEAMER Network Director Announces RFTS 9 Technical Support Recipients – Testing Expertise and Access to Marine Energy Research (TEAMER)**

On April 13, 2023, the U.S. TEAMER program selected ten projects through its ninth Request for Technical Support (RFTS), reflecting a total funding amount of more than \$1.2 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. Applications for RFTS 10 are currently being accepted through July 7, 2023. Supported by the U.S. DOE and directed by the Pacific Ocean Energy Trust, 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.

## **Wind Energy**

### **BeWild: Using eDNA to Measure Biodiversity at Offshore Wind Farms – Fugro**

The BeWild project, aimed at measuring biodiversity at offshore wind farms, was recently launched at Fugro's TechCenter in Nootdorp. Fugro, together with project partners, will focus on developing innovative methodologies and technologies for remotely collecting environmental DNA (eDNA) samples in the North Sea. The collected data will assess the impact of offshore wind farms on biodiversity and explore ways to adapt existing infrastructure to enhance marine habitats. Fugro will develop remote marine eDNA collection, analysis, and interpretation capabilities as part of its remote inspection solutions. By also integrating the eDNA sampling into its uncrewed surface vessels (USVs) and remotely operated vehicles (ROVs), Fugro aims to not only inspect subsea assets but also the broader subsea environment.

### **Pattern Energy Selects EPC Contractors for America's Largest Clean Energy Infrastructure Project – Pattern Energy**

Pattern Energy, a leader in renewable energy and transmission infrastructure, announced it has selected Quanta Services, Inc. and Hitachi Energy to build its SunZia Transmission and Wind project, which will enable access to over 3,500 MW of New Mexico wind power, providing clean, reliable, and affordable electricity across Western states. Quanta was selected to provide a turnkey solution for the 550-mile 525kV high-voltage direct current (HVDC) SunZia Transmission line that will deliver up to 3,000 MW of clean energy from the SunZia Wind project to the southwestern United States. In addition, Blattner Company, a Quanta operating company, was selected for the project to provide turnkey solutions for the SunZia Wind facility and associated switchyard, which includes the installation of more than 900 turbines, ten substations, multiple operations and maintenance facilities, and more than 100 miles of wind generation transmission lines.



## **Ireland Awards 3.1 GW Offshore Wind Capacity in First ORESS 1 Auction – Offshore Wind**

Ireland has selected four projects with a combined capacity of nearly 3,100 MW in the first offshore wind auction under the Renewable Electricity Support Scheme (ORESS 1). The four projects are the 1,300 MW Codling Wind Park owned and developed by a 50/50 joint venture of Fred. Olsen Seawind and EDF Renewables; the 824 MW Dublin Array owned and developed by RWE; the 500 MW North Irish Sea Array (NISA), owned and developed by Copenhagen Infrastructure Partners (CIP) and Statkraft; and the 450 MW Sceirde Rocks wind farm owned and developed by Fuinneamh Sceirde Teoranta (FST), a joint venture owned by Corio Generation, a portfolio company of Macquarie's Green Investment Group, and global infrastructure investor, Ontario Teachers' Pension Plan. The ministry said that the price secured, at an average of EUR 86.05/MWh, is one of the lowest prices paid by an emerging offshore wind market in the world.

## **Wind power without long wait: Ruhr University, JBO and RWE research construction of wind turbines on recultivated land – RWE**

Is it possible to build wind farms on former opencast mining sites sooner than has been the case up to now? Are freshly recultivated areas already stable enough? Ruhr University Bochum, engineering office Jörss-Blunck-Ordemann (JBO) and RWE are investigating this in a joint research project. Soils that are still young usually need to settle for several years before they can be cultivated. Modern wind turbines weigh up to 6,500 tonnes. Therefore, recultivated areas are usually only built on after up to 15 years. On the initiative of RWE, the experts will now be investigating an operating area at the Inden opencast mine for three years. There, they want to select the most complex possible subsoil for the research project. Then the field test is due to begin with gravel and sand to be piled up on a circular area with the radius of a wind turbine.

## **China Commissioning First Deep-Sea Floating Offshore Wind Turbine – The Maritime Executive**

China reports it has completed the installation of its first floating, deep-sea, wind turbine which will be used to power an offshore oil field. Developed and owned by the China National Offshore Oil Corporation (CNOOC), the wind turbine is being reported as a breakthrough due to its ability to handle harsh sea conditions in deep and open seas. CNOOC reports it will be a model for opening up the far offshore wind sector. Last week, CNOOC reported that the placement of the dynamic submarine cable measuring over three miles in length had been completed. With the 7.25 MW turbine now in position, and the subsea cable installed, CNOOC reports the final commission will proceed. Once the turbine is generating power, they expect it will have an annual generation capacity of 22 million kilowatt hours.