



**10 June 2022**

[Tethys](#) is an online knowledge hub that facilitates the exchange and dissemination of information on the environmental effects of wind and marine energy. The bi-weekly *Tethys Blast* highlights new publications in the [Tethys Knowledge Base](#); relevant announcements, opportunities, and upcoming events; and news articles of international interest. [ORJIP Ocean Energy](#) has partnered with [OES-Environmental](#) to provide additional content. Email [tethys@pnnl.gov](mailto:tethys@pnnl.gov) to contribute!

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## **Announcements**

### New SEER Research Brief

The U.S. Offshore Wind Synthesis of Environmental Effects Research ([SEER](#)) effort recently published a new educational research brief, [Bat and Bird Interactions with Offshore Wind Energy Development](#), on *Tethys*. Recordings from all SEER webinars are also available [here](#).

### WREN Technologies Survey

Working Together to Resolve Environmental Effects of Wind Energy ([WREN](#)) is developing an online tool on *Tethys* to serve as a reference of available technologies for monitoring and mitigating the environmental effects of land-based and offshore wind energy development. If you would like to submit your technology for inclusion in the tool, please complete [this survey](#).

### BOEM Seeking Comments

The US Bureau of Ocean Energy Management (BOEM) has published Calls for Information for possible offshore wind leasing off [Oregon](#) and in the [Central Atlantic](#). Comments are due 28 June 2022. BOEM is also seeking public comments to inform preparation of an environmental impact statement for US Wind's proposed facility off [Maryland](#) through 8 July 2022, and for the proposed sale notice for offshore wind energy facilities off [California](#) through 1 August 2022.

## Calls for Abstracts

The [Call for Abstracts](#) for the Renewable Energy Wildlife Institute's [14<sup>th</sup> Wind Wildlife Research Meeting \(WWRM\)](#) has been extended to 13 June 2022. WWRM 2022 will take place on 15-17 November 2022.

The New York State Energy Research and Development Authority has reopened its [Call for Poster Abstracts](#) for the [3<sup>rd</sup> State of the Science Workshop on Wildlife and Offshore Wind Energy](#) through 13 June 2022. The workshop will take place 26-28 July 2022 in Tarrytown, US.

The [Call for Abstracts](#) for the [5<sup>th</sup> International Marine Science Communication Conference \(CommOCEAN 2022\)](#) is now open through 15 June 2022. CommOCEAN 2022 will take place from 30 November to 1 December 2022 in Sète, France and online.

The [Call for Abstracts](#) for American Clean Power's [Offshore WINDPOWER Conference & Exhibition 2022](#) is now open through 15 July 2022. The event will take place 18-19 October 2022 in Providence, US.

## Calls for Papers

The *Marine Technology Society Journal* is accepting submissions for the Special Issue, "[Advancements in Buoy Technology to Support Ocean Observations, Maritime Safety, and Environmental Characterization](#)". Manuscripts are due 20 June 2022.

The *Journal of Marine Science and Engineering* is accepting submissions for several Special Issues, including "[Offshore Renewables for a Transition to a Low Carbon Society](#)" (due 1 July 2022), "[Impacts of Offshore Wind Farms on Marine Ecosystems, Fisheries and Societies](#)" (due 15 July 2022), and "[Tidal and Ocean Current Energy](#)" (due 20 July 2022).

## Funding & Testing Opportunities

The Sustainable Energy Authority of Ireland is offering [free-of-charge access](#) to the research and testing facilities at the Lir National Ocean Test Facility for eligible Irish offshore renewable energy (wave, wind, tidal, floating solar) developers. Applications are due 17 June 2022.

The US DOE and National Alliance for Water Innovation recently released a [Pilot Program Request for Proposals](#) to design, build, operate, and test pilot-scale desalination and water-reuse treatment systems that treat non-traditional water. Concept papers are due 29 June 2022.

The International Union for Conservation of Nature has launched a new [Blue Natural Capital Financing Facility Call for Proposals](#) and is looking for coastal Nature-based Solutions and Green-Gray Infrastructure projects with potential to combine conservation and/or restoration of ecosystems with the selective use of conventional engineering. Applications are due 3 July 2022.

The US Testing and Expertise for Marine Energy Research (TEAMER) program is now accepting [Request For Technical Support \(RFTS\) 7](#) applications through 16 July 2022.

The European Commission is launching the Innovation Fund's second [Call for Small Scale Projects](#) in renewable energy, energy-intensive industries including substitute products, energy storage, and carbon capture, use and storage. Applications are due 31 August 2022.

WEAMEC (West Atlantic Marine Energy Community) has opened a [Call for Projects](#) to support eligible French researchers with writing and structuring marine energy projects that will be carried out by academic members of the community. Applications are due 30 November 2022.

### Student & Employment Opportunities

The Environmental Research Institute at the University of the Highlands and Islands (ERI-UHI) is looking for a [Marine Acoustic Engineer](#) to lead development of an integrated system for marine mammal mitigation from offshore developments (e.g. windfarm, oil & gas, harbour construction, etc.) on marine mammals. Applications due 13 June 2022.

The Schatz Center Research Center at California Polytechnic State University Humboldt is seeking an [Offshore Wind Engineer or Scientist](#) to contribute to research and project work related to offshore wind on the U.S. Pacific Coast. Applications are due 17 June 2022.

Le Havre Normandie University is seeking a [Post-Doctoral Fellow](#) to join a France Energies Marines project focused on modelling the marine dune dynamics and scour processes around offshore wind turbine monopiles. Applications are due 18 June 2022.

The Norwegian University of Science and Technology, in collaboration with the Norwegian Institute for Nature Research, is advertising a [PhD position on ecological restoration of wind energy facilities from construction to decommission](#). Applications are due 1 July 2022.

The Bath Beacon in Zero-Carbon Offshore Power is inviting Expressions of Interest from researchers who would like to be hosted at the University of Bath as a [Marie Skłodowska Curie Actions European Postdoctoral Fellow](#). Applications are due 14 July 2022.

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## **Upcoming Events**

### Webinar Recordings Available

The National Renewable Energy Laboratory recently hosted an [Eagle Behavior and Risk Modeling for Wind Energy Webinar](#) that presented recent progress in the development and validation of new eagle behavioral models and highlighted applications for wind-plant siting and operations. Recordings of each presentation are now available [here](#).

### Upcoming Course

As part of the PORTOS (Ports Towards Energy Self-Sufficiency) project, the University of Plymouth is hosting an online [Training Course on Economics, Policies, and Legal Framework on Marine Renewable Energy](#) from 4-6 July 2022. Register for free [here](#) by 30 June 2022.

## Upcoming Webinars

The Dutch Marine Energy Centre (DMEC) is hosting a [Marine Energy Deep Dive Webinar on Nature Positive Design](#) on 14 June 2022 from 1:00-2:00pm CEST (11:00am-12:00pm UTC). During the webinar, Bureau Waardenburg, BESE, and Eneco will share insights and examples, and explore the role of marine energy in innovative nature inclusive projects.

The Marine Energy Data Pipeline effort, led by Pacific Northwest National Laboratory (PNNL), recently released the latest version of [Tsdats](#), a data ingestion pipeline that can be used to read, process, run quality control, and convert raw data to standard formats. To learn more about Tsdats and its architecture, join the “[Marine Energy Data Pipeline Updates](#)” webinar on 14 June 2022, from 12:00-1:00pm PDT (7:00-8:00pm UTC). A recording will be made available on the Portal and Repository for Information on Marine Renewable Energy ([PRIMRE](#)).

PNNL’s [Triton Initiative](#) is hosting the next webinar in its *Triton Talks* series on 16 June 2022 from 11:00am-12:00pm PDT (6:00-7:00pm UTC). During the webinar, fish biologist Garrett Staines will present strategies and methods developed to assess collision risk associated with marine energy installations. Register [here](#).

The Pacific Ocean Energy Trust is hosting a webinar, “[Offshore Wind and Upwelling](#)”, from 1:00-2:00pm PDT (8:00-9:00pm UTC) on 15 June 2022. During the webinar, Integral Consulting will present the findings of a recently released report on the potential impact that offshore wind development may have on upwelling. Register [here](#).

Mercator Ocean International is hosting a webinar, “[Marine Data for Policies](#)”, from 10:00am-12:00pm CEST (8:00-10:00am UTC) on 21 June 2022. The webinar will provide an overview of the Copernicus Marine Service and how it can support European Union Policies. Register [here](#).

Ocean Energy Systems (OES), an International Energy Agency Technology Collaboration Programme, is hosting a webinar, “[Ocean Energy Outlook in India, Republic of Korea and Singapore](#)”, on 22 June 2022 from 8:00-9:00am UTC. During the webinar, delegates from three OES Member Countries will highlight ocean energy projects and key policies. Register [here](#).

Working Together to Resolve Environmental Effects of Wind Energy ([WREN](#)) is hosting a webinar, “[International Assessment of Priority Environmental Issues for Land-based and Offshore Wind Energy Development](#)”, on 29 June 2022 from 10:00-11:00am EDT (2:00-3:00pm UTC). The webinar will highlight results of stakeholder feedback from 294 responses across 28 countries. Panelists from several WREN member countries will provide their perspective on the assessment and priority research within the next 5-10 years. Register [here](#).

## Upcoming Conferences

The Pan American Marine Energy Association is hosting the [Pan American Marine Energy Conference \(PAMEC 2022\)](#) on 19-22 June 2022 in Ensenada, Mexico, with workshops on 17-18 June 2022. Register [here](#).

The Governments of Kenya and Portugal are co-hosting the [2022 United Nations Ocean Conference](#) from 27 June to 1 July 2022 in Lisbon, Portugal. Learn how to participate [here](#).

The [19th International Bat Research Conference and 50th Annual North American Symposium on Bat Research](#) will take place on 7-12 August 2022 in Austin, Texas. Register [here](#).

The [Offshore Energy Exhibition & Conference 2022](#) will take place on 29-30 November 2022 in Amsterdam, Netherlands. Early bird registration is available [here](#) until 24 June 2022.

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## **New Documents on *Tethys***

### **Marine Energy**

#### **[Life cycle assessment of a point-absorber wave energy array](#) – Pennock et al. 2022**

Wave energy has a large global resource and thus a great potential to contribute to low-carbon energy systems. This study quantifies the environmental impacts of a 10 MW array of 28 point-absorber wave energy converters, by means of a process-based life cycle assessment (LCA). Midpoint and Cumulative Energy Demand LCA results are presented over 19 impact categories, representing impacts encompassing human health, ecosystems and resource availability. Three scenarios are undertaken to represent the use phase of the array, identified as a particularly uncertain input, with very little long-term operation of wave energy arrays available to validate assumptions.

#### **[What's in My Toolkit? A Review of Technologies for Assessing Changes in Habitats Caused by Marine Energy Development](#) – Hemery et al. 2022**

Marine energy devices are installed in highly dynamic environments and have the potential to affect the benthic and pelagic habitats around them. Regulatory bodies often require baseline characterization and/or post-installation monitoring to determine whether changes in these habitats are being observed. However, a great diversity of technologies is available for surveying and sampling marine habitats, and selecting the most suitable instrument to identify and measure changes in habitats at marine energy sites can become a daunting task. We conducted a thorough review of journal articles, survey reports, and grey literature to extract information about the technologies used, the data collection and processing methods, and the performance and effectiveness of these instruments.

#### **[Seabirds and Marine Renewable Energy Sources](#) – Harwood & King 2022**

Seabirds face a wide range of anthropogenic threats and, increasingly, compete with other marine users for resources. The Marine Renewable Energy (MRE) industry is a relatively recent, but rapidly growing, exploiter of coastal and offshore waters around the world. However, MRE projects may have negative and positive effects on seabirds, such as causing displacement, fragmenting or creating habitat, posing a collision threat and affecting prey resources. This chapter provides an overview of the MRE industry,

possible effects on seabirds and the roles of planning, monitoring, mitigation and compensation are considered. Whilst our understanding of project-level and cumulative effects has developed rapidly with the industry, significant gaps in knowledge remain.

## **Wind Energy**

### **[Wind turbines without curtailment produce large numbers of bat fatalities throughout their lifetime: A call against ignorance and neglect](#) – Voigt et al. 2022**

Bats are protected by national and international legislation in European countries, yet many species, particularly migratory aerial insectivores, collide with wind turbines which counteracts conservation efforts. Within the European Union it is legally required to curtail the operation of wind turbines at periods of high bat activity, yet this is not practiced at old wind turbines. Based on data from the national carcass repository in Germany and from our own carcass searches at a wind park with three turbines west of Berlin, we evaluated the magnitude of bat casualties at old, potentially poor-sited wind turbines operating without curtailment. We report 88 documented bat carcasses collected by searchers over the 20-year operation period of this wind park from 2001 to 2021.

### **[Assessment of the visual impact of offshore wind farms](#) – Gkeka-Serpetsidaki et al. 2022**

The decarbonization of energy power generation is the main ambition globally. In this new era, the development of offshore wind farms (OWFs) will play a vital role. So, the social acceptability of the deployment of offshore wind farms has to be investigated in detail. The principal goal of this study is to test existing tools for the assessment of the visual impact due to an OWF. Improvements were also suggested, when it was found that the factors did not correspond to reality. The adopted methodology compared the results from the original Spanish method, Spanish method II, Greek legislation, local people surveys, and innovative combinations of scenarios to minimize the visual impact. The software tools AutoCAD, ArcGIS, and Google Earth were also employed.

### **[Using weather radar to help minimize wind energy impacts on nocturnally migrating birds](#) – Cohen et al. 2022**

As wind energy rapidly expands worldwide, information to minimize impacts of this development on biodiversity is urgently needed. Here we demonstrate how data collected by weather radar networks can inform placement and operation of wind facilities to reduce collisions and minimize habitat-related impacts on nocturnally migrating birds. We found over a third of nocturnal migrants flew through altitudes within the rotor-swept zone surrounding the North American Great Lakes, a continentally important migration corridor. Migrating birds concentrated in terrestrial stopover habitats within 20-km from shorelines, a distance well beyond the current guidelines for construction of new land-based facilities, and their distributions varied seasonally and at local and regional scales.

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## News & Press Releases

### Marine Energy

#### [CorPower Ocean set to launch ‘next-generation’ wave energy converter](#) – Offshore Energy

CorPower Ocean is set to officially launch its next-generation C4 wave energy converter alongside its new ‘CorPack Concept’, providing the building blocks for future wave energy farms. The unveiling, to take place at the SPACE Arena in Stockholm in Sweden on June 15, 2022, comes as the wave energy developer prepares to deliver its flagship HiWave-5 Project in northern Portugal, with ocean deployment planned later this year. The new full-scale CorPower C4 device will ultimately form part of a four-system wave energy array, located off the coast of Aguçadoura, creating one of the world’s first grid-connected wave farms. The HiWave-5 Project is the result of a decade of intense product development and three decades of research on wave hydrodynamics.

#### [Sabella tidal stream turbine injects electricity again into the Ushant grid](#) – Ocean Energy Europe

After the successful re-immersion of the D10 turbine in April 2022 and its reconnection to the Ushant Island electricity grid, the third test and production campaign of this tidal turbine has started as planned after a period of testing and adjustments. The improvements made to the turbine over the last few months, in particular the modification of the turbine’s export connections and the smoothing of the electrical production on land, have been a success and now allow the turbine electricity production to be injected into the grid. This smoothing function, developed in partnership with the Syndicat d’Énergie et d’Équipement du Finistère, and the company ENTECH, within the framework of the European Interreg ICE project, had never been tested in situ before.

#### [Marine Energy Hub opens in the Netherlands](#) – Offshore Energy

Dutch Marine Energy Centre (DMEC) has launched the Marine Energy Hub – a base for the Dutch marine energy industry that brings together all of the stakeholders under the joint aim of accelerating the development of the marine energy sector. At the newly launched hub, located at Hellingweg in Scheveningen, the special marine energy exhibition has also been organized to showcase the innovation in the marine energy sector. Namely, a tidal turbine made by a Dutch company Tocardo will be on display on the quay to draw attention on the potential of marine energy as a sustainable energy source. Since 2015, five Tocardo tidal turbines have been integrated into the sluice gates of the Oosterschelde storm surge barrier to supply 1000 households with clean electricity.

#### [Carnegie Achieves CETO Digital Development Pathway Commercial Target](#) – Carnegie Clean Energy

Carnegie is pleased to announce that its Digital Development Pathway has achieved its commercial target, through the cost and performance improvements of CETO. These

improvements have reduced CETO's timeframe to commercialisation, making its pathway comparable to the historical progression of solar PV and offshore wind. This is a key milestone and showcases how, with deployment, wave energy can become a commercially competitive and widely adopted technology. The work conducted is expected to accelerate the uptake of CETO over the coming years by bringing the technology down the cost curve sooner, making it increasingly attractive to markets.

### **EEL Energy puts 50kW biomimetic tidal turbine on tryouts in France – Offshore Energy**

The first tests of EEL Energy's 50kW tidal turbine took place in May in the Port of Brest, with the support of local marine service provider TSM Iroise Mer. Based on the concept of bio-mimicry, EEL Energy's tidal energy converter has been designed to replicate the undulating movements of marine life to produce clean power. The results of tests in the Port of Brest has enabled the company to validate the design of the machine, which is 10 times more powerful than the prototypes tested earlier, according to EEL Energy. EEL Energy added that the next step is another test campaign, to be conducted in July, to test a variant on the hydraulic energy recovery system.

## **Wind Energy**

### **The Crown Estate commits £50million to accelerate the UK's offshore energy ambitions and protect the marine environment – The Crown Estate**

The Crown Estate has doubled its commitment to enable the coexistence of offshore wind farms with a thriving marine environment as the nation ramps up aspirations to accelerate homegrown energy independence. Since the launch of the UK Government's British Energy Security Strategy - which raises ambitions for offshore wind generation to achieve up to 50GW by 2030 alongside commitments to environmental restoration - The Crown Estate has committed a further £25 million into its Offshore Wind Evidence and Change Programme, bringing the total investment intent up to £50 million. The programme is gathering and harnessing the necessary data and evidence to propel forward the growth of UK offshore wind at pace, while maintaining clean, healthy, productive and biologically diverse seas.

### **BOEM and NOAA Announce First-Ever Successful Drone-based Tagging of Endangered Sei Whales in U.S. – BOEM**

The U.S. BOEM and the National Oceanic and Atmospheric Administration's (NOAA) Stellwagen Bank National Marine Sanctuary recently announced the successful digital acoustic tagging of 14 sei whales in waters offshore Massachusetts. This is the first time researchers have successfully tagged an endangered species in the United States using an uncrewed aerial vehicle (UAV), or drone. The collected data will shed important light on the whales' acoustic behavior, which researchers will use to inform mitigation strategies – including passive acoustic monitoring – to protect this endangered species from the potential impacts of offshore wind energy activities. Watch a video of the tagging [here](#).



### **Ørsted invests in Spoor, enters technology development partnership to improve birdlife data from offshore wind farms – Ørsted**

Ørsted will help test and commercialise a new technology to collect more and better birdlife data at its windfarms around the world. The new cost-effective and highly scalable bird monitoring tool will ultimately support Ørsted's ambition to deliver net-positive biodiversity impact for all new projects from 2030. Ørsted and venture capital firms Nysnø Climate Investments, Wiski Capital, Norrsken Foundation, and Antler have invested in Spoor AI via a seed funding round. Ørsted will also enter into a partnership with Spoor to develop and commercialise its technology at Ørsted's offshore wind farms. Spoor is a Norwegian 'deeptech' start-up which has built a specially designed artificial intelligence system to monitor and track birdlife at offshore windfarms.

### **Golden age for renewable energy dawns as construction starts on Australia's largest wind farm – ACCIONA Energía**

Construction has started on the largest wind farm to ever be built in Australia and one of the largest in the southern hemisphere. The AUD \$2 billion MacIntyre Wind Precinct will be built by global renewable energy leader ACCIONA Energía creating hundreds of jobs in regional Queensland. MacIntyre boasts 180 world class turbines that will produce 1,026MW of clean renewable wind energy using the world's most efficient and advanced turbines from Germany. When complete, the Precinct will generate enough electricity to power the equivalent of 700,000 homes each year. The Precinct will create over 450 direct jobs during construction with an additional 220 jobs supported by Powerlink to build the transmission infrastructure.

### **Europe can expect to have 10 GW of floating wind by 2030 – WindEurope**

Floating offshore wind is developing rapidly. Europe today has 113 MW of floating wind turbines in operation and is in the process of developing many more and larger floating wind farms. Norway is now building the world's biggest floating wind farm, Hywind Tampen (88 MW). France will have four small projects of around 30 MW each up and running within 2 years. By 2024 Europe will have 330 MW of floating wind in operation. Then things will start to scale up big time. France is now running its first of 3 auctions in 2 years for large floating wind farms, each 250 MW. Spain, Greece, Portugal, and Norway all plan to start large-scale auctions in the coming year.