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[Tethys](#) is an online knowledge base that facilitates the exchange and dissemination of information on the environmental effects of wind and marine renewable energy (MRE). 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.

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Announcements

New Feature on *Tethys*

A new feature in the [Tethys Knowledge Base](#) allows users to filter content to publications with PDF attachments available (i.e., no paywalls or copyright restrictions). To utilize this feature, check the “Uploaded to *Tethys*” box under the “Attachment” filter in the Knowledge Base.

Calls for Abstracts

The [Environmental Interactions of Marine Renewable Energy Technologies \(EIMR\) Conference](#) will be held in Oban, Scotland on 21-23 April 2020. Abstracts for oral presentations and posters can be submitted [here](#) until 13 January 2020 at 16:00 GMT.

The [European Geosciences Union \(EGU\) General Assembly 2020](#) will be held in Vienna, Austria on 3-8 May 2020. Please consider submitting an abstract to the session, [Marine Renewable Energy: Resource Characterisation, Interactions, and Impacts](#). The abstract submission deadline is 15 January 2020 at 13:00 CET.

Funding Opportunities

The European Commission has released a [Call for Proposals](#) for projects that can improve environmental monitoring of tidal and wave devices and support the development of ocean energy in Europe. The deadline is 15 January 2020.

Innovate UK will invest up to £1.5 million in UK companies partnering with US consortia to work on projects as part of the \$40 million US National Offshore Wind Research and Development Consortium programme. [Express an interest in applying](#) by 15 January 2020.

The New York State Energy Research and Development Authority (NYSERDA) has released a [Request for Proposals](#) to support the collection of geophysical and geotechnical data from areas off New York's Atlantic coast that hold the potential for future offshore wind development. The deadline for submissions is 21 January 2020.

The €13 million [OceanDEMO project](#) has announced the [2nd call for applications](#). The project aims to accelerate marine renewable energy's transition from single prototype to multi-device farms by providing access to world-leading test centers. Applications close 31 January 2020.

Upcoming Events

Upcoming Webinars

The National Wind Coordinating Collaborative (NWCC) will be hosting a [webinar](#) on 16 January 2020 from 2:00-3:30 p.m. ET which will highlight research supported by the U.S. Department of Energy on systems and technologies for monitoring wildlife, including birds, bats, and North Atlantic right whales, at offshore wind energy facilities. Register [here](#).

ETIP Ocean & DTOceanPlus will be hosting a [webinar](#) on 22 January 2020 from 3:00-4:00 p.m. UTC which will highlight DTOceanPlus' development of a novel framework for the standard representation of data formats for ocean energy systems. Register [here](#).

Upcoming Workshop

The Centre for Ocean Energy Research at Maynooth University Ireland will be hosting its [6th Wave Energy Workshop](#) on 24 January 2020. The scope of the event will cover a range of topics across wave energy conversion, with a broad focus on modelling, control and estimation/forecasting. The call for posters closes 10 January 2020. Register [here](#).

Upcoming Conferences

[Oceanology International 2020](#) will be held in London from 17-19 March 2020. Registration is free and available [here](#).

[Global Offshore Wind 2020](#) will be held in Manchester Central from 16-17 June 2020. The call for papers closes 22 January 2020.

New Documents on *Tethys*

Marine Renewable Energy

[Relating fish distributions to physical characteristics of a tidal energy candidate site in the Banks Strait, Australia](#) – Scherelis et al. 2019

The Banks Strait, a tidal channel located in the northeast of Tasmania, Australia, was identified as a promising candidate site for tidal energy by the Australian Tidal Energy (AUSTEn) project. To gain an understanding about potential overlap between TEC arrays and fish usage of the Banks Strait tidal channel, fish density distributions were estimated from hydroacoustic surveys during the tidal resource characterization campaign. Fish densities were significantly higher at night and displayed preferences for depths between 20 – 40 m and current speeds between 1.75 – 2 m/s.

[Management of Coastal Erosion Under Climate Change Through Wave Farms](#) – Bergillos et al. 2019

In this chapter, the efficiency of wave farms in coastal protection under sea-level rise is investigated. A wave farm formed by 11 wave energy converters was modelled off Playa Granada, a gravel-dominated coast in Southern Spain, under three sea-level rise scenarios: the current water level and the water level in 2100 according to a low- and high-emission scenario. In order to explore the effects produced by the wave farm, the natural scenario without wave farm was also studied.

[Experimental and Numerical Investigation of Wake Interactions of Marine Hydrokinetic Turbines](#) – Gotelli et al. 2019

To study the performance and environmental impacts of marine hydrokinetic (MHK) turbine arrays, we carry out an investigation based on laboratory experiments and numerical models able to resolve the dynamics of turbulent wake interactions and their effects on the river bed. We investigate a scaled Sabella D10 mounted on a mobile bed for a single and two aligned turbines, measuring the flow velocity, the rotor angular velocity, and the scour on the sediment bed.

Wind Energy

[Functional differences in trophic structure of offshore wind farm communities: A stable isotope study](#) – Mavraki et al. 2019

The proliferation of offshore wind energy installations causes a local change in biodiversity because these structures become heavily colonised by large quantities of fouling fauna, attract large mobile crustaceans and fish, and alter the macrofaunal communities in the soft sediments surrounding the wind turbines. Here, we analysed the

stable isotope signals ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) of the faunal communities associated with a wind turbine, its scour protection layer (SPL) and the surrounding soft sediments.

Wind turbine noise limits propagation of greater prairie-chicken boom chorus, but does it matter? – Whalen et al. 2019

Acoustic signals are often critical elements of mating displays, and lekking male greater prairie-chickens (*Tympanuchus cupido pinnatus*) use their boom vocalization for this purpose. We quantified the acoustic characteristics of the boom chorus created by multiple male greater prairie-chickens vocalizing simultaneously at leks in Brown County, NE, USA, in 2013 and 2014. We used these data to evaluate (a) the role of the boom chorus in prairie-chicken breeding dynamics and (b) the impact of a wind energy facility on the acoustic signal of the boom chorus.

Perceptions of Commercial and Recreational Fishers on the Potential Ecological Impacts of the Block Island Wind Farm (US) – ten Brink & Dalton 2018

Although offshore wind farms have been developed in Europe and Asia, the Block Island Wind Farm (BIWF) is the first offshore wind farm built in North America. This study investigates recreational and commercial fishers' perceptions of the impacts of the BIWF on the local marine ecosystem. Semi-structured interviews were conducted with 25 fishers, mostly based out of Block Island or Point Judith, Rhode Island (US), in the summer and fall of 2017. Results indicate that there were perceived impacts of the BIWF on the local ecosystem and the behavior of the marine resource users.

News & Press Releases

Marine Renewable Energy

QED Naval and HydroWing acquiring Tocardo Tidal Power – Tocardo

QED Naval and HydroWing are delighted to announce a new collaborative European joint venture and with it the acquisition of Holland's premier tidal turbines business, Tocardo. This new and innovative joint venture provides a truly end to end service with a spectrum of turbines, foundation systems, marine operations, as well as design, support and service expertise. The companies have already been working in partnership on tidal projects in Europe and will be expanding on this as they further develop their complimentary technologies.

MaRINET2 Nears €5 Mln of Free Testing Access for Renewables – Marine Energy

The MaRINET2 project has awarded €1.3 million worth of free lab, tank and open-sea testing to 38 offshore renewable energy developers. The results of the project's fourth call bring the total amount provided by MaRINET2 for free testing access to €4.8 million. High-quality testing of devices and components is an essential part of accelerating the

development of wave, tidal and offshore wind technologies. The next and final call is due to open in June 2020 and will raise the total allocated by the project to over €5 million.

Two-Thirds of Contracts Awarded for 1.5MW Wave Energy Device Project – Bombora

Bombora has now contracted more than 70% of its ground breaking £17 million Pembrokehire Demonstration Project. The project is currently on schedule for deployment in mid-2020. The project is part of Bombora's accelerated commercialisation plan to validate mWave's performance capabilities with a bigger scheme in Lanzarote, Spain already on the horizon. It will be the first time a full-scale 1.5MW device has been deployed in the ocean.

Hawaiian Blessing Hosted for Wave Energy Converter at Joint Base Pearl Harbor-Hickam – NAVFAC

Naval Facilities (NAVFAC) Engineering and Expeditionary Warfare Center hosted a traditional Hawaiian Blessing for the Ocean Energy 35 (OE35) Wave Energy Converter Buoy at Joint Base Pearl Harbor-Hickam. For context, the 826-ton buoy measures 125 feet by 59 feet with a draft of 31 feet. Fabricated by Vigor Technologies, the oversized buoy deployed from its fabrication site in Portland, Oregon, and made its journey to the U.S. Navy Wave Energy Test Site located in Kaneohe, Hawaii. After installation, the OE35 device will be the largest capacity wave energy device installed globally.

Applications open for ocean thermal energy purchase in Maldives – Maldives Insider

Applications are now open for potential off-takers in the Maldives to buy energy produced by an England-based clean energy systems developer, Global OTEC Resources' demonstration project. Ocean thermal energy conversion (OTEC) is an application of solar energy in which the heat that the ocean captures from the sun's rays is used. The firm said that it will be ready to launch its demonstration OTEC Barge in the Maldives late next year. It already has interest from financiers to build a small-scale OTEC demonstration plant with a capacity rating of 150 KW.

Wind Energy

World's Largest Floating Wind Turbine Begins Generating Power – Green Tech Media

The WindFloat Atlantic project connected the first of three 8.4-megawatt MHI Vestas turbines planned for installation. The second turbine is on site for connection. The project is connected to a substation in Portugal via a 12-mile cable and secured with chains to the seabed 100 meters below. That sort of depth is outside the comfort zone of fixed bottom offshore wind, and it is that capability that lies at the root of floating wind's advantages. Deploying in deeper waters opens up new seabed areas for leasing and increases the potential total capacity for installations.

UK F1 Technology Helps Advance Chinese Wind Industry to Drive De-Carbonisation – Offshore Renewable Energy (ORE) Catapult

Anakata Wind Power Ltd has successfully installed its innovative wind turbine blade enhancements, which can improve energy output by up to 10%, on a turbine at China's Gansu Changma wind farm thanks to support from the TUS-ORE Catapult Research Centre. This is the first time that blade aerodynamic add-ons, which are quick, safe and easy to install, have been used on a Chinese wind farm. The Anakata blade 'winglets' can be retrofitted to turbine blades to enhance their performance and increase energy production.

Horns Rev 3 Helps Denmark Set Wind Energy Production Record – Offshore Wind

Electricity produced by wind turbines covered 46.9% of consumption in Denmark in 2019, setting a new record for the country and for the world, according to Wind Denmark. This is a 3.5% increase in the share of wind energy in the mix compared to the country's second-best result of 43.4% set in 2017. The price of the electricity generated by wind turbines fell by 12.7% compared to the previous year, Wind Denmark said. The increase in the wind energy share was attributed to the start of operations at the 407 MW Horns Rev 3 offshore wind farm.

Vestas leads the market in Vietnam with third intertidal project win - Vestas

Vestas leads the market for wind energy in Vietnam with almost 200 MW of projects won in 2019 after securing a 50 MW order Hoa Binh 1 Company. The order marks Vestas' third intertidal project in the country with three different customers announced this month, underlining Vestas ability to deliver tailored solutions to match different customer needs. The project will be located in Hòa Bình, a district of Bạc Liêu Province where the turbines will be installed in shallow waters close to shore to exploit the full potential of the Mekong Delta region's good wind conditions.

Researchers Find Mysterious Seafloor Holes – Marine Technology News

During a recent survey of the deep seafloor off Big Sur, Monterey Bay Aquarium Research Institute (MBARI) researchers discovered thousands of mysterious holes or pits in the seafloor. Scientists and resource managers want to understand how these pits formed because this area is the site of a proposed wind-energy farm. Over the last few years, additional surveys by MBARI and other organizations revealed over 5,200 pockmarks spread out over 1,300 square kilometers, making this area the largest known pockmark field in North America.