



3 April 2020

[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.

[Announcements](#)
[Upcoming Events](#)

[MRE Documents](#)
[Wind Documents](#)

[MRE News](#)
[Wind News](#)

Announcements

[New Tethys Story](#)

[The European Union's Efforts in Understanding Environmental Impacts of Wave Energy Devices](#) by Xavier Guillou, Juan Bald, Erica Mathers, Caitlin Long, and Dorian Overhus

The emerging marine renewable energy (MRE) industry faces many challenges including uncertainty around potential environmental pressures and impacts. In order to move beyond current consenting barriers, the European Commission has provided support to increase research and reduce uncertainty around the potential environmental impacts of MRE development. Two projects which were cumulatively funded with 1.5 million euros by the European Union, the Wave Energy in Southern Europe (WESE) and Strategic Environmental Assessment of Wave energy technologies (SEA Wave), are presented [here](#).

[March Water Wire](#)

The U.S. Department of Energy's (DOE) Water Power Technologies Office (WPTO) recently released the [March Water Wire](#). This edition of the monthly newsletter highlights open funding opportunities, prize selections, and new products. Subscribe to the Water Wire [here](#).

[Survey to Explore Regulatory and Political Barriers](#)

On behalf of the DTOceanPlus consortium, WavEC Offshore Renewables is conducting an [online survey](#) to determine to what extent the legal, institutional, and political frameworks currently in place in several European Union Member States are acting as barriers to wave and tidal energy project deployment. The questionnaire is open until Monday 6 April 2020.

Call for Papers

The Marine Technology Society Journal is accepting manuscript submissions for a [special issue](#) entitled, *Utilizing Offshore Resources for Renewable Energy Development: Marine Renewable and Offshore Wind Energy*. The deadline for manuscript submissions is 22 June 2020.

Call for Abstracts

The [7th PRIMaRE \(Partnership for Research In Marine Renewable Energy\) Conference](#) is now accepting abstracts submissions until 17 April 2020. The conference will be held online from 7-8 July 2020, with no charge for attendance.

The American Wind Energy Association (AWEA) is now accepting abstract submissions for the [Wind Resource & Project Energy Assessment Conference 2020](#) in Minneapolis, Minnesota from 29-30 September 2020. Abstracts can be submitted [here](#) and are due by 30 April at 11:59 EST.

Funding Opportunities

The Supergen Offshore Renewable Energy (ORE) Hub has extended its [second round of Flexible Funding](#) which will award a total of up to £1.2 million to seed areas that complement existing research, fill gaps, or add cross cutting activities to explore the transfer of research findings between sectors within ORE. Expressions of Interest must now be submitted by 17 April 2020 at 5:00pm GMT.

The Blue-GIFT (Blue Growth and Innovation Fast Tracked) project has announced the [2nd call for applications](#). The project aims to help Atlantic Area companies test the next generation of MRE technology in real sea environments. Applications close 30 April 2020 at 17:00 UTC.

The U.S. DOE's Wind Energy Technologies Office has issued a [funding opportunity](#), entitled "Offshore Wind Energy Atmospheric Science and Project Development", to support offshore wind development by improving the ability to forecast energy production, and by demonstrating innovative technologies not yet deployed at commercial scale. Concept papers are due 30 April 2020 and full applications are due on 9 July 2020.

The U.S. DOE's WPTO has issued a [funding opportunity](#), entitled "Marine Energy Foundational Research and Testing Infrastructure", to build marine energy research capabilities and leverage expertise to help the developing marine energy industry tackle complex scientific and technical problems. Concept papers are due 11 May 2020 and full applications are due on 7 July 2020.

Upcoming Events

Upcoming Webinars

Pacific Ocean Energy Trust (POET) is starting a series of webinars on west coast ocean energy, with a focus on floating offshore wind, entitled, *The Science of Offshore Renewable Energy Effects – What Do We Know and What Do We Still Need to Learn?* The webinars will feature experts in the field who will share what they know, engage in dialogue with participants, and help move the conversation along as floating offshore wind becomes established in a responsible manner. The first webinar will be held on 15 April from 10:00-11:30am PT on what we have learned from marine renewables and the relationship to floating offshore wind, featuring speakers from Pacific Northwest National Laboratory's Coastal Division. Join the webinar [here](#).

OES-Environmental and ORJIP Ocean Energy invite you to join a new international forum that will present and review the latest in research and monitoring around marine renewable energy sites. The forum kicks off with a three-part environmental webinar series to be held on 21, 22, and 23 April 2020 from 8:00-10:00am PT. Each webinar will showcase four to five speakers and will include time for Q&A and discussion. The first webinar, [Update on Monitoring and Research Around Turbines](#), will be held on 21 April; the second webinar, [Design and Application of Integrated Monitoring Platforms for Monitoring Around MRE Devices](#), will be held on 22 April; and the third webinar, [Updates on Monitoring and Research Around Wave Devices](#), will be held on 23 April.

Event Updates

The New York State Energy Research and Development Authority's second [State of the Science Workshop](#) on Wildlife and Offshore Wind Energy, originally scheduled for early May 2020, has been postponed to 16-17 November 2020.

[The European Maritime Day Conference and Expo](#), originally scheduled for mid-May 2020, has been postponed. Event organizers are looking into possible alternative dates.

The [MaRINET2 course](#) on "Marine Energy Environmental Data Collection", initially scheduled for late June 2020, will be postponed. A decision to confirm the event will be taken after the application close date on 24 April 2020.

New Documents on *Tethys*

Marine Renewable Energy

[Ocean Energy Systems Annual Report 2019](#) – Ocean Energy Systems 2020

Ocean Energy Systems (OES) is the short name for the Technology Collaboration Programme on Ocean Energy Systems under the International Energy Agency (IEA). The

OES connects organisations and individuals working in the ocean energy sector to accelerate the viability, uptake and acceptance of ocean energy systems in an environmentally acceptable manner. This Annual Report presents an overview of progress made by the OES, including summaries of new, ongoing and recent projects, as well as updated country reviews prepared by the Delegates.

Using acoustic telemetry for high-resolution sablefish movement informing potential interactions with a tidal turbine – Staines et al. 2020

At present, the potential for fish interactions and subsequent injury or mortality are a significant concern with instream turbines. The Juvenile Salmon Acoustic Telemetry System (JSATS) developed by Pacific Northwest National Laboratory has proven effective for fish passage estimates and fine-scale movement in river impoundments and near dams. Leveraging the success of previous JSATS applications and applying it to the marine environment, juvenile sablefish (*Anoplopoma fimbria*) were tagged and tracked using a fixed-position receiver array in a marine tidal channel for the first time.

Modelling the impact of flow-driven turbine power plants on great wind-driven ocean currents and the assessment of their energy potential – Barnier et al. 2020

The persistence in the strength and direction of western boundary great ocean currents suggests that flow-driven turbines implemented in these currents have great potential for energy exploitation. Here we use a global eddy-resolving ocean model to demonstrate that large ocean power plants may exert feedback on oceanic circulation that results in highly unpredictable changes in ocean currents. Regionally, these changes can drastically modify the path of the current. In extreme cases this corresponds to a decrease in the available power by more than 80% from initial expectations.

Wind Energy

The Measurement and Prediction of Underwater Noise from Impact Pile Driving during the Construction of Offshore Wind Farm – Han 2020

In this paper, the measurements of underwater noise generated from impact pile driving during the construction of offshore wind farm in the southwest coast of Korea were carried out to investigate the acoustic characteristics and to estimate the sound pressure level for the range. The noise levels measured as a function of range were compared with the predictions obtained from the both numerical wave propagation model and empirical model. The source level of pile driving noise and the relationship between the sound exposure level and peak sound pressure level were discussed and the model is further applied to predict the noise contours at the construction area.

The management utility of large-scale environmental drivers of bat mortality at wind energy facilities: The effects of facility size, elevation and geographic location – MacGregor and Lemaître 2020

Wind power development can cause direct mortality of both birds and bats through collisions with turbines, but the estimates of mortality necessary to evaluate the impact of this mortality are unavailable for many facilities and regions. We used monitoring surveys from the majority of facilities in a contiguous region spanning 800 km of southwest-northeast distance and almost 900 m of elevation (Quebec, Canada) to produce estimates of mortality per facility. We then used this set of estimated annual mortalities to explore how changes in installed capacity (megawatts), elevation and geographic position affected estimated annual mortality.

[Governing Risks of Multi-Use: Seaweed Aquaculture at Offshore Wind Farms](#) – van den Burg et al. 2020

Spatial claims concerning the rapidly growing European offshore wind sector give rise to various ideas for the multi-use application of wind farms. Seaweed is considered a promising feedstock for food and feed that could be produced at offshore wind farms. In this study, key environmental risks of seaweed cultivation at offshore wind farms, identified through literature review, are characterized based on stakeholder consultation. The current approach to risk governance is evaluated to assess how it can handle the uncertain, complex, and/or ambiguous risks of multi-use.

News & Press Releases

Marine Renewable Energy

[DOE and NOAA Announce 11 Winners of the Powering the Blue Economy™ Ocean Observing Prize](#) – DOE

The U.S. Department of Energy (DOE), in partnership with the National Oceanic and Atmospheric Administration (NOAA), recently announced the 11 winners of the first DISCOVER, stage of the Powering the Blue Economy™: Ocean Observing Prize. The competition is designed to spur technology innovation, allow for easier and/or cheaper data collection across the 80% of the world's oceans that remain unexplored, and contribute to the growth of the blue economy. Of the selected winning teams, 10 will receive \$10,000 each, and the grand prize winner, CalWave Power Technologies Inc., will receive \$25,000.

[Orbital Set Ambition on Installing First Floating Tidal Farm at EMEC](#) – EMEC

Scottish based tidal energy developer Orbital Marine Power (Orbital) have signed up to a second berth at the European Marine Energy Centre (EMEC) in Orkney, Scotland. This will pave the way for Orbital to deliver their first floating tidal turbine farm. Orbital are currently in the process of manufacturing their first commercial O2 turbine; at 2 MW and with a swept area of over 600 m² the O2 will be the world's most powerful tidal turbine and will be capable of meeting the annual electricity demand of over 1,700 UK homes.

The first O2 turbine is currently expected to be grid connected at EMEC by the end of 2020 with a view to being fully operational in early 2021.

Minesto secures all permits for Faroe Islands' installations – Minesto

Marine energy developer Minesto and its collaboration partner, the Faroese electric utility company SEV, has been granted all necessary permits and consents for the installation of two grid-connected tidal kite systems in Vestmannaasund, Faroe Islands. The granted permits and consents cover two DG100 tidal kite systems which will be installed in Vestmannaasund in a collaboration between Minesto and SEV. Minesto has been granted public funding totalling approximately €3.5 million through the European Union's EIC Accelerator and the Swedish Energy Agency for the implementation of the Vestmannaasund project and the development of the DG100 marine energy converter.

Two Scottish teams secure £1 million to bring down cost of wave energy – Wave Energy Scotland

Two consortia will share just under £1 million for projects that aim to bring down the cost of wave power. The teams – one led by consultant engineers Arup and the other by rope and mooring specialists Tension Technology International – have each secured funding from Wave Energy Scotland (WES) to demonstrate the potential of new applications of materials to bring down the cost of wave power. The Arup consortium aims to show that pre-cast reinforced concrete can be incorporated in a variety of wave technologies. Tension Technology International will advance the design of their flexible buoyant pod which is encapsulated in a fibre rope net.

Nova Scotia Calls Off New Tidal Project at FORCE – Marine Energy

Nova Scotia's call for applications to fill the vacant tidal energy berth at the Fundy Ocean Research Centre for Energy (FORCE) has been cancelled. In December last year, a team from Power Advisory led by John Dalton, an electricity policy consultant, was hired to serve as procurement administrator for a call for proposals. According to Power Advisory, COVID-19 has had a dramatic impact on businesses' ability to schedule and complete work and secure funding for project activities. The government may decide to issue another 'Call for Applications' after consulting with the tidal sector.

Wind Energy

Wind Industry Unites to Drive Sector's Digital Transformation – ORE Catapult

With big data, digitalisation and cybersecurity hot topics for the wind industry, the Offshore Renewable Energy (ORE) Catapult is spearheading the sector's digital transformation through its Wind Digital Innovations Forum (WDIF). A joint initiative with the Digital Catapult, the Forum was formally launched in February 2020. It brings together wind owner/operators and asset managers including BayWa, Vattenfall, Innogy,

Natural Power and Wood, with academia and small innovators, such as Cognitive Business and Cyberscape, to drive forward the sector's digital transformation.

Iberdrola to boost floating offshore wind in Europe – Powering Engineering International

Iberdrola is strengthening its position in the floating offshore sector with the development of two innovative demonstration projects. The company will lead an international consortium that aims to install a floating turbine in excess of 10 MW in Norway, and is close to joining a further demonstration project in Spain. The project in Norway, known as “FLAGSHIP”, will see the design, fabrication, installation and operation of a demonstration floating offshore wind turbine using a 10+ MW turbine and a semi-submersible floating concrete structure (OO-Star Wind Floater). It will be tested in the North Sea, at the Met Centre located in Norway.

Ocean DEMO Greenlights Three Floating Wind Projects – Offshore Wind

Ocean DEMO, a EUR 13 million Interreg-funded project, has recommended three floating wind technology developers for support packages under the second call. EOLink and TFI Marine, along with seven other developers from various ocean energy industries, can apply for support packages to test multi-device arrays or single devices looking to scale up to multi-device in the future. The companies will receive free access to test their technologies and services in real sea environments at Ocean DEMO's network of test centres: EMEC (UK), DMEC (the Netherlands), SEM-REV (France) and SmartBay (Ireland).

Siemens Gamesa 170-meter rotor debuts in Swedish onshore wind project – Power Engineering

The first deployment of the wind turbine with the largest rotor in the onshore industry is to be in Sweden. Siemens Gamesa has won an order for eight of its 5.8-170 turbines from Danish developer Eurowind Energy for the 46 MW Knöstad project near Karlstad in Sweden. The turbines will operate at a capacity of up to 6.2 MW, resulting in record high annual energy production, according to the company. Siemens Gamesa has also secured a 25-year full service agreement. This will be the second project to feature the Siemens Gamesa 5.X platform in Sweden.

Philippines Takes First Offshore Wind Step – Offshore Wind

The Philippines' Department of Energy has awarded Triconti Windkraft Group with a contract that gives the Group exclusive rights to study and develop the first offshore wind projects in the country. Triconti Windkraft Group, a Filipino-Swiss-German partnership, has plans to develop two wind farms off the coast of the Philippines: Aparri Bay in the north and Guimaras Strait in the Central Philippines. The two projects have a total capacity of 1.2GW.