



15 November 2019

The bi-weekly *Tethys Blast* highlights new publications on *Tethys*, opportunities in wind and marine renewable energy, and news articles of international interest. [ORJIP Ocean Energy](#) has partnered with OES-Environmental to provide additional content. We hope you find this a valuable tool to keep you connected to new research, opportunities, and industry milestones.

Announcements

Call for Abstracts

The abstract submission deadline has been extended for the [International Conference on Ocean Energy \(ICOE\)](#) in Washington, D.C. on 19-21 May 2020. Abstracts for proposed panels, oral presentations, and posters can now be submitted until 22 November 2019 at 11:59pm ET.

Tethys Engineering Photo Library

The [Tethys Engineering Photo Library](#) hosts photos and illustrations of marine renewable energy devices, arrays, and facilities that have been graciously provided by several developers and are available for free third party use. Be sure to take a look through the library for images for your next presentation!

MHK Graduate Student Research Program

The U.S. Department of Energy's Water Power Technologies Office and Oak Ridge Institute for Science and Education (ORISE) are accepting applications for the [Marine and Hydrokinetic Graduate Student Research Program](#). Applications are due by 9 December 2019 at 5:00pm EST.

U.S. Collegiate Wind Competition

The National Renewable Energy Laboratory has released a [Request for Proposals \(RFP\)](#) for students interested in competing in the U.S. Department of Energy's Collegiate Wind Competition in the spring of 2021. The RFP is open for applications until 9 December, 2019, and interested students and faculty can learn more about the competition and the application requirements [here](#).

Upcoming Events

Upcoming Workshop

OES-Environmental (formerly Annex IV) and ORJIP Ocean Energy invite you to join a workshop on 4 December 2019 from 10:00 to 15:30 AEST at the Aerial UTS Function Centre in Sydney, Australia. The purpose of the workshop is to provide a state of the science on environmental effects of marine renewable energy and to examine pathways for determining data needs, monitoring requirements, and possible mitigation measures for working towards risk retirement of two stressors—electromagnetic fields and underwater noise—for permitting small installations of tidal and wave energy converters. For more information and to register for the workshop, please visit the workshop's [event page](#) on *Tethys*.

The Interreg North-West Europe (NWE) Programme will be hosting its first [impact event](#) on 4-5 December 2019 in Tourcoing, France. The event will feature a dedicated workshop for ocean energy, where project partners will discuss their needs, find synergies, and elaborate ideas for further cooperation. Register [here](#) by 15 November 2019.

Upcoming Webinar

ETIP Ocean and OES-Environmental will be hosting a [webinar](#) on marine spatial planning opportunities and challenges in the ocean energy sector on 19 November 2019 at 7:00am PST / 3:00pm UTC / 4:00pm CET. Click [here](#) for log-in information.

Upcoming Conferences

The [18th World Wind Energy Conference](#) will be held in Rio de Janeiro, Brazil on 25-27 November 2019.

The inaugural [Pan American Marine Energy Conference \(PAMEC\)](#) will be held in San Jose, Costa Rica on 26-28 January 2020. Registration fees increase on 1 January 2020.

New Documents on *Tethys*

[Tethys knowledge management system: Working to advance the marine renewable energy industry](#) – Whiting et al. 2019

Development of the marine renewable energy (MRE) industry has been challenged by uncertainty about potential environmental effects, which has resulted in slowing of permitting/consenting processes, and ultimately to constraints on the industry. This paper describes an ongoing process to improve understanding of the environmental effects of MRE through a public, online knowledge management system developed by the U.S. Department of Energy, known as *Tethys*.

Simulating impacts of real-world wind farms on land surface temperature using the WRF model: physical mechanisms – Xia et al. 2019

A recent study shows that the current wind turbine parameterization in the weather research and forecasting (WRF) model can generally reproduce the satellite observed nighttime warming signal over wind farm (WF) regions over west central Texas, but also tends to produce a cooling effect in the WF downwind regions. The present study conducts a series of WRF simulations to further this research by addressing two fundamental questions: (i) what is the 3-D structure of simulated near-surface temperatures within and around WFs? (ii) what are the main physical mechanisms responsible for the simulated WF-induced temperature changes?

Does temporal variability limit standardized biological monitoring at wave and tidal energy sites? – Gonzalez et al. 2019

Commercial viability of Marine Renewable Energy (MRE) is progressing but no national or international monitoring standards have been established for wave or tidal energy sites. Standardized monitoring within and across MRE sectors is necessary to expedite project permitting/consenting, detect environmental impacts, and enable comparison among sites and technologies. Acoustic backscatter from a bottom-deployed platform at a pilot wave energy site off Newport, Oregon was compared to data collected at a tidal turbine site in Admiralty Inlet, Washington.

Influence of landscape and time of year on bat-wind turbines collision risks – Roemer et al. 2019

Collisions with wind turbines threaten bat populations worldwide. Our goal was to disentangle the effects of landscape on bat density and vertical distribution to produce recommendations for wind farm siting. With a vertical array of two microphones, we monitored the acoustic activity and located the vertical distribution of more than 16 bat species on 48 wind masts in France and Belgium (> 8000 nights). We modelled bat density and vertical distribution for six species in function of distance to water, woodland and buildings, and in function of the topography at three different scales (200 m, 1000 m, and 5000 m).

The influence of waves on morphodynamic impacts of energy extraction at a tidal stream turbine site in the Pentland Firth – Fairley et al. 2018

Extraction of energy from tidal streams has the potential to impact on the morphodynamics of areas such as sub-tidal sandbanks via alteration of hydrodynamics. Past work on tidal stream turbine impacts has largely ignored the contribution of waves. Here, a fully coupled hydrodynamic, spectral wave and sediment transport model is used to assess the importance of including waves in simulations of turbine impact on seabed morphodynamics. Focus is given to a sandbank in the Inner Sound of the Pentland Firth.

It is found that inclusion of wave action alters hydrodynamics, although extent of alteration is dependant of wave direction.

[Benthic Monitoring During Wind Turbine Installation and Operation at the Block Island Wind Farm, Rhode Island](#) – Bartley et al. 2018

Key observations, data, findings, and results from benthic monitoring conducted in and around the Block Island Wind Farm (BIWF) Project Area are presented in this report. The monitoring was conducted to gather real-time data during the installation and initial operations of the wind turbine generators. The overall goal of the study was to better understand the nature and potential spatial and temporal scales of anticipated alterations in benthic macrofaunal community characteristics because of the long-term placement of the turbine foundations on the seafloor.

News & Current Events

Marine Renewable Energy

[Supergen ORE Hub launches interactive webtool to bring together UK Offshore Renewable Energy research](#) – Supergen ORE

The Supergen Offshore Renewable Energy (ORE) Hub has launched an interactive Research Landscape to communicate Offshore Renewable Energy (ORE) research. The mission of the Supergen ORE Hub is to connect academia, industry, policymakers and the public to inspire research and innovation and maximise the societal value in offshore wind, wave and tidal energy. Following a series of consultation events with over 180 partners, the Hub has developed a series of research themes, challenges and opportunities faced by the ORE community.

[SIDS DOCK and Naval Energies to Develop OTEC Deep-Sea Conversion and Floating Wind Projects for Small Island Developing Nations](#) – Naval Energies

SIDS DOCK, the United Nations (UN)-recognized Small Island Developing States (SIDS) Sustainable Energy and Climate Resilience Organization and Naval Energies, an industrial leader in the Marine Renewable Energies sector, signed a Memorandum of Understanding to support the development of Ocean Thermal Energy Conversion (OTEC) Deep-Sea Conversion plants and Offshore Floating Wind projects in the SIDS. Through this partnership, both SIDS DOCK and Naval Energies will closely cooperate with regional organizations, the small island countries and the renewable energies stakeholders to promote the development of projects.

[DOE Announces \\$24.9 Million Funding Selections to Advance Hydropower and Water Technologies](#) – DOE

The U.S. Department of Energy (DOE) announced selections for up to \$24.9 million in funding to drive innovative, industry-led technology solutions to advance the marine and hydrokinetics industry and increase hydropower's ability to serve as a flexible grid resource. Projects were selected across four Areas of Interest (AOI)—Hydropower Operational Flexibility, Low-Head Hydropower and In-Stream Hydrokinetic Technologies, Advancing Wave Energy Device Design, and Marine Energy Centers Research Infrastructure Upgrades.

NEMOS Wave Energy Converter Testing Underway - NEMOS

NEMOS has successfully started testing its 2019 Wave Energy Converter (WEC) prototype in Ostend, Belgium. Following a series of handling and installation tests, the machine was finally deployed at its mooring system 500 m off the coast of Ostend in October. The process went smoothly when the self-floating system was towed by a tugboat and coupled to its anchor lines. During the operation, the WEC functioned as planned and important data was gathered. Due to adverse weather forecasts, the WEC was recovered to shore at the beginning of November.

Sea trial in the Principality of Monaco announced for SBM Offshore's innovative S3® Wave Energy Converter – SBM Offshore

The Principality of Monaco and SBM Offshore presented the press with a key step in the Wave Energy Converter S3® project (WEC), which uses wave energy to produce electricity. Already tested in the laboratory, the system still needs to be tested at sea before its commercialization, and a prototype will be deployed in Monegasque waters (off Fontvieille heliport) in 2021, for an estimated test duration of one year. The demonstrator will be in the form of a "floating rubber tube", 60m long and 1.2m in diameter submerged at about 4m deep.

Wind Energy

GE's Haliade-X 12 MW Nacelle, the World's Most Powerful Offshore Wind Turbine, Arrives in the UK for Testing – ORE Catapult

A nacelle from GE Renewable Energy's Haliade-X 12 MW offshore wind turbine has arrived at the Offshore Renewable Energy (ORE) Catapult's testing facility in Blyth, Northumberland, ahead of a rigorous testing programme designed to prepare it for years of operation at sea. This nacelle, comparable in size to six double-decker London buses, will undergo full indoor testing as part of an advanced technology programme, replicating real-world operational conditions. This is the second Haliade-X nacelle to be assembled, with the first recently installed in Rotterdam, which last week produced its first power.

ENGIE Africa consortium starts Commercial Operation of Egypt's first private & largest wind farm – ENGIE Africa

ENGIE Africa is pleased to announce that construction and commissioning of the 262.5 MW Ras Ghareb wind farm in Egypt is complete 45 days ahead of schedule. The wind farm is now fully connected to the grid and is ready for commercial operation at maximum capacity. Ras Ghareb Wind Energy is the first wind farm tendered on a Build-Own-Operate (BOO) scheme and is part of the Egyptian government's drive to increase the share of renewables in the energy mix with a target wind generation capacity of 7 GW by 2022.

25 MW Floating Offshore Wind Development Coming Online – North American Wind Power

The Windplus consortium, which is jointly owned by EDP Renováveis, ENGIE, Repsol and Principle Power Inc., is installing the largest floating wind turbine in the world: an 8.4 MW unit classified by ABS, a global provider of classification and technical advisory services to the marine and offshore industries. The project will comprise three of these ABS-classed machines, designed by Principle Power and housing MHI Vestas turbines, giving a total of 25 MW of capacity. The development is located 20 km off the coast of Viana do Castelo, Portugal. It is scheduled to come online at the end of this year.

The Nordex Group manufactures its 1000th concrete tower for its own wind turbines – Nordex Group

Around 15 – 20 per cent of the total cost of wind turbines are accounted for by the tower and the related logistics costs for transport to the wind farm. For this reason, the Nordex Group uses concrete towers in addition to tubular steel and hybrid towers for parts of its product portfolio. What makes them special is that the manufacture of concrete tower segments is based on a mobile concept and is always located close to the wind farm, resulting in correspondingly low logistics costs. Recently a milestone was reached: the 1000th concrete tower for an AW125/3000 machine left the Brazilian factory in Lagoa do Barro for the 595 MW "Lagoa dos Ventos" wind farm.

Vestas Partners with NRG Systems to Resell Bat Deterrent Technology – NRG Systems

NRG Systems, Inc., a designer and manufacturer of smart technologies for a range of wind, solar, and meteorological applications, announced today that it signed a strategic agreement with Vestas Wind Systems A/S to offer turnkey Bat Deterrent Systems, complete with installation and service, for existing Vestas turbines. The global agreement covers Vestas turbines in all regions but is initially commercially available only in the United States and Canada with other countries to follow.