



**28 June 2019**

The bi-weekly *Tethys Blast* highlights new information on *Tethys*, news articles of international interest, and opportunities in wind and marine renewable energy. We hope you find this a valuable tool to keep you connected to colleagues, new research, opportunities, and industry milestones.

## Upcoming Funding Opportunity

The U.S. Department of Energy's Water Power Technologies Office has launched the first stage of the [Waves to Water Prize](#), which seeks to accelerate technology innovation in wave energy powered desalination systems. Applications for the first concept stage are due 6 September 2019.

## Job Opportunity

The European Marine Energy Centre (EMEC) is seeking an Environment & Consent Officer to support the acquisition, maintenance, and streamlining of all statutory consents required at EMEC or other identified sites. See the [position description](#) for details.

## Upcoming Conferences

The Pacific Ocean Energy Trust's [Ocean Renewable Energy Conference](#) will be held in Portland, Oregon on 11-12 September 2019. Early bird registration is available until 12 July 2019.

[Energy3 Canada](#) will be held in Halifax, Nova Scotia on 16-18 October 2019. Early bird registration is available until 17 July 2019. The abstract submission deadline is 22 July 2019.

The [International Conference on Ocean Energy](#) (ICOE) will be held in Washington, D.C. on 19-21 May 2020. The National Hydropower Association (NHA) [announced this week](#) that the theme for ICOE 2020 is "Energizing a Powerful Blue Economy". The event will be co-located with NHA's [Waterpower Week in Washington](#).

## New Documents on *Tethys*

New documents are regularly added to *Tethys*, hand-selected for their relevance to the environmental effects of wind and marine renewable energy. Short excerpts from new or popular documents are listed below, accessible by the accompanying *Tethys* links:

### [Characterizing the benthic community in Maryland's offshore wind energy areas using a towed camera sled: Developing a method to reduce the effort of image analysis and community description](#) – Cruz-Marrero et al. 2019

In order to understand potential environmental impacts of wind turbine installation on the benthic ecosystem within the designated area, we conducted a study to visually characterize bottom habitats and epibenthic communities in the Mid-Atlantic Outer Continental Shelf blocks of the Maryland wind energy area. Our results allowed us to define distinct epibenthic communities and bottom habitats that are associated with offshore wind energy sites and to develop a sampling technique for digital images that can be applied to other research programs.

### [A fundamental coupling methodology for modeling near-field and far-field wave effects of floating structures and wave energy devices](#) – Stratigaki et al. 2019

This research focuses on the numerical modelling of wave fields around (oscillating) structures such as wave energy converters (WECs), to study both near and far field WEC effects. In this paper, a generic coupling methodology is presented, developed to combine the advantages of two approaches. In addition, a novel wave generation technique is presented, for generating the perturbed wave field induced by an oscillating WEC, in a wave propagation model. Finally, the benefits of the proposed coupling methodology to model floating bodies in a phase resolving wave propagation model are discussed.

### [Effects of wind farms on near-surface wind speed](#) – Xin et al. 2019

Large-scale development of wind farm has brought environmental benefits, at the same time, it will also affect local meteorological environment. We choose Zhurihe wind farm, which is located in Sonid Youqi of Inner Mongolia, as our study area. Our Observation instrument is HOBO automatic meteorological station. The observation points are set on upwind area, inner wind farm and downwind area, in order to parallelly observe wind speed of 0.5m, 1.5m and 3.0m height. The results show that the wind farm consumes wind energy and reduces wind speed of inner wind farm and downwind area.

### [Three-dimensional movements of harbour seals in a tidally energetic channel: Application of a novel sonar tracking system](#) – Hastie et al. 2019

Understanding how marine predators utilize habitats requires that we consider their behaviour in three dimensions. Recent research has shown that marine mammals often make use of tidally energetic locations for foraging, yet data are generally limited to observations of animals at the water surface. Here, a dual 720 kHz sonar system was

developed to investigate the three-dimensional movements of harbour seals in a tidally energetic channel. The results have important implications for the prediction of risk associated with interactions between seals and tidal turbines in these dynamic habitats.

### **Environmental Sensitivity Modeling and Site Characterization – Guttenplan et al. 2019**

This paper examines an environmental weighting tool developed for site assessment of New York offshore wind development and discusses future applications of sensitivity weighting for site identification and assessment as part of the development of other renewable energy projects across different geographic locations. As part of New York State's Offshore Wind Master Plan, Ecology and Environment, Inc., with direction from New York State Energy Research and Development Authority, developed a weighted sensitivity model to evaluate the relative risk of developing offshore wind infrastructure.

### **Combined Exploitation of Offshore Wind and Wave Energy in the Italian Seas: A Spatial Planning Approach – Azzellino et al. 2019**

The opportunity to co-locate wind and wave energy exploitation is analyzed in the Italian seas grounding on the rationale that benefits are greater when un-correlated resources are combined. Both the potential for combining different renewable technologies, and the impact associated to such development was considered in the context of the existing pressures (e.g., naval traffic; mariculture activities; submarine cables routes; dredge spoils dumping; windfarms and ocean energy projects) and vulnerabilities (Marine Protected Areas, Key habitat presence) through quantitative indicators.

## **News and Current Events**

### **Marine Renewable Energy**

#### **Pioneering 1 MW wave-energy pilot project being built in Hermanus – Engineering News**

A South African wave-energy start-up is building a pioneering 1 MW pilot project, based on its patented homegrown design, which will supply clean electricity to a large-scale Hermanus abalone farm, in the Western Cape. Mean Sea Level (MSL) is developing the first-of-its-kind project with equity investments from the Industrial Development Corporation, angel investors and aquaculture group Abagold, which produces 500 t of abalone yearly.

#### **Energy Department's Small Business Innovation Research Program Announces Seven New Water Power-Focused Projects for FY19 – U.S. Department of Energy**

Seven small businesses were selected by the Office of Energy Efficiency and Renewable Energy (EERE)'s Water Power Technologies Office (WPTO) within the latest round of the Energy Department's Small Business Innovation Research (SBIR) program. In this round of funding, small businesses are receiving Phase I Release 2 grants that

demonstrate technical feasibility for innovations during the first phase of their research. Most Phase I awards are for \$200,000 for less than one year.

### **Renewable Energy Makes Waves in Oregon – Science Friday**

A renewable energy project planned off the coast of Newport is taking a step forward. Oregon State University has submitted a final license application for a wave energy testing facility with the Federal Energy Regulatory Commission. If built, it would be the largest of its kind in the United States. The footprint of the project includes four wave energy testing “berths” spread over an area of about 2.5 square miles in federal waters southwest of the coastal town of Newport.

### **GE to partner on MeyGen tidal energy project in Scotland – Electric Light & Power**

SIMEC Atlantis Energy has chosen GE’s Power Conversion business as its preferred supplier to deliver the electrical systems that will power the tidal stream turbines for the MeyGen tidal energy development. Located in the Pentland Firth, north of Scotland, the MeyGen project is the only commercial multi-turbine array to have commenced construction, GE says. It has been providing power to the UK grid for more than a year, after Atlantis completed installation of four generating units at the site in 2017.

### **Ocean Power Technologies Receives U.S. Patent For Its Power Take-Off System For Use With Wave Energy Conversion Buoys - Ocean Power Technologies**

Ocean Power Technologies, Inc., a leader in innovative and cost-effective ocean energy solutions, announced today that the Company has received a new U.S. patent for its Power Take-Off (PTO) System which is the mechanical heart of the PB3 PowerBuoy®. Ocean waves that pass by the PowerBuoy® create a relative linear motion between the float and the spar components of the PB3. The PTO system takes the linear motion of the float through the input shaft and converts it into rotary motion via a ball-screw.

## **Wind Energy**

### **Offshore renewable energy developers step in to help complete vital seabird count – Joint Nature Conservation Committee**

A group of offshore renewable energy companies has provided a much-needed financial boost to ‘Seabirds Count’, the fourth national census of the UK’s breeding seabird populations. Thanks to equal funding contributions from EDF Renewables (EDF Renewables), Moray Offshore Windfarm (West) Limited (Moray West), Red Rock Power Limited (Red Rock Power) and SSE Renewables, alongside support from government and conservation charities, the count is now set for completion in 2020.

### **New Jersey’s First Offshore Wind Farm Will Be a Mammoth 1.1-GW Ørsted Project – Power Magazine**

Danish renewables firm Ørsted's 1.1-GW Ocean Wind project is the winner of New Jersey's first award for offshore wind, the New Jersey Board of Public Utilities (NJBPU) said on June 21. NJBPU unanimously granted the award to Ørsted after evaluating wide criteria, including the offshore wind renewable energy certificate (OREC) purchase price, economic impact, ratepayer impact, environmental impact, the strength of guarantees for economic impact, and the likelihood of successful commercial operation.

### **W2Power Spins Off Canary Islands – 4C Offshore**

Spanish marine energy company EnerOcean S.L. has officially commissioned a 1:6 scaled prototype of its integrated wind turbine platform off the Canary Islands. The W2Power project aims to demonstrate the fully-integrated offshore wind floating platform. W2Power features a semi-submersible floating foundation platform, with two integrated wind turbines and a platform with a ladder for servicing. The prototype will be installed at the PLOCAN site 30km off the coast of the Canary Islands.

### **Vattenfall Puts Bird Monitoring on Radar – Offshore Wind**

The next phase of environmental research at the European Offshore Wind Deployment Centre (EOWDC) off the Aberdeenshire coast is scheduled to start next week after Vattenfall appointed a Scottish specialist to carry out the studies. The Edinburgh-based team of RPS Consulting and Danish-based DHI Group will deploy radar-camera based digital technology to monitor the flight patterns and responses of gannet, kittiwake and large gulls flying during the summer breeding season through and close to EOWDC.

### **Argentina opens 122.4-MW Bicentennial Wind Farm – Renewable Energy World**

The 122.4-MW Bicentennial Wind Farm has been inaugurated in the Santa Cruz province of Argentina and is currently the largest wind farm in the country, according to BNAmericas. The Bicentennial I and II Parks are located about 15 km from the town of Jaramillo, northern provincial area. The park has 35 wind turbines, each with a capacity of 3.6 MW, through the RenovAr and MATER National Programs. The project involved a total investment of US\$160 million and for the construction phase generated 190 jobs.



[ORJIP Ocean Energy](#) is a UK-wide collaborative programme of environmental research with the aim of reducing consenting risks for wave, tidal stream, and tidal range projects. Partnering with Annex IV, ORJIP provides content input to *Tethys* Blasts and wishes to make you aware of the following opportunities:

- The [Clean Energy for EU Islands Secretariat](#) has invited EU islands to apply for assistance to advance the development of individual renewable energy and energy efficiency projects in their local community. Applications close 30 June 2019.

- The [€3 million OceanDEMO](#) project has announced the 1<sup>st</sup> call for applications. The project aims to accelerate ocean energy's transition from single prototype to multi-device farms by providing access to world-leading test centres. Applications close 1 July 2019.
- The [Katapult Ocean Accelerator Programme](#) has launched its 2<sup>nd</sup> call for applications from start-ups looking to provide solutions to ocean challenges. The 3-month programme will focus on growth, investor readiness, leadership development, exponential tech and introductions to the Norwegian and global ocean tech ecosystem. Applications close 31 August 2019.