



**7 February 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.

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## **Announcements**

### Ocean Observing Prize

The [Powering the Blue Economy: Ocean Observing Prize](#), a joint prize between the Water Power Technologies Office at the U.S. Department of Energy and the Integrated Ocean Observing System program at the National Oceanographic and Atmospheric Administration, is still open. Submissions for the first of a series of competitions, which seeks novel concepts that integrate ocean observing technologies with marine energy systems to address end-user needs, are due 12 February 2020.

### Call for Papers

The Journal of Ocean Technology (JOT) has launched a [call for technical papers, essays, and short articles](#) on marine spatial planning. The submission deadline for technical papers and expression of interest for essays and short articles is 21 February 2020. The submission deadline for essays and short articles is 24 April 2020.

### Woman in Wind Global Leadership Program

The Global Wind Energy Council and the Global Women's Network for the Energy Transition have announced the [call for applications](#) for the second edition of their joint [Women in Wind Global Leadership Program](#). Applications will be accepted until 16 February 2020 at 23:59 CET.

### Funding Opportunities

The Marine Energy Alliance (MEA) has opened the [2<sup>nd</sup> call for applications](#). The aim of MEA is to progress the technical and commercial maturity level of early-stage marine energy technology companies with the overall goal of reducing the risk of device failure in subsequent demonstration phases. Applications close 14 February 2020.

The U.S. Department of Energy (DOE) has released a [Funding Opportunity Announcement](#) for the DOE Small Business Innovation Research and Small Business Technology Transfer programs. Applications are due 24 February 2020.

The European Maritime and Fisheries Fund has launched the [Blue Economy Window call](#) to support the sustainable development of small and mid-size enterprises across the European Union. The deadline of the call is 27 February 2020.

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## Upcoming Events

### Upcoming Webinar

The Ocean Energy Research Association (OERA) will be hosting a [webinar](#) entitled, "Quantifying Fish-Turbine Interactions Using New VEMCO Tagging Technology" from 1:00-2:00pm AST on 20 February 2020. Register [here](#).

ETIP Ocean and DTOceanPlus will be hosting a [webinar](#) entitled, "Stage Gate Design Tool for Ocean Energy" on 25 February 2020 from 7:00-8:00am PST. Register [here](#).

### Upcoming Workshops

Mercator Ocean International, Maritime Cluster of the Canary Islands (CMC), and The Oceanic Platform of the Canary Islands (PLOCAN) will host a [Regional Copernicus Marine Service Training Workshop](#) dedicated to the Iberia-Biscay-Ireland Region from 24-25 March 2020 in Las Palmas de Gran Canaria, Spain. The workshop will consist of a mixture of plenary expert talks, round table discussions, and hands-on exercises to explore the open-access Copernicus marine product catalogue. Register [here](#).

The New York State Energy Research and Development Authority (NYSERDA) will be hosting its second [State of the Science Workshop](#) on Wildlife and Offshore Wind Energy from 5-6 May 2020 in Rye Brook, New York. Workshop attendees will review offshore wind development's cumulative effects on populations and ecosystems, and work together to develop short-term research plans to improve our understanding of cumulative biological impacts as the offshore wind industry develops in the U.S.

## Upcoming Conferences

Offshore Wind Scotland will be hosting a speaker panel event, [Robotics for Offshore Wind](#), in Glasgow, Scotland on 20 February 2020. Registration is free and available [here](#).

The [Environmental Interactions of Marine Renewable Energy Technologies \(EIMR\) Conference](#) will be held in Oban, Scotland from 21-23 April 2020. Early bird registration closes 28 February.

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

### **Marine Renewable Energy**

#### **[Use of a model turbine to investigate the high striking risk of fish with tidal and oceanic current turbine blades under slow rotational speed](#) – Yoshida et al. 2020**

The turbine blades of marine renewable energy devices pose a striking/collision risk to marine species. The striking/collision risk is considered low based on data from tidal power generation test sites. There are some unknown aspects due to a lack of observational data, in particular, the data that indicates direct striking. Therefore, this paper attempts to show an example how fishes strike turbine blades even though the rotating blades are slower than fish swimming speed. A preliminary experiment was carried out in a laboratory-scale water tank using the fish *Gnathopogon elongatus*.

#### **[Effects of the Eastern Scheldt Storm Surge Barrier and tidal energy turbines on harbor porpoise \(\*Phocoena phocoena\*\) and harbor seal \(\*Phoca vitulina\*\) movements](#) – Kastelein and Jennings 2019**

The Eastern Scheldt Storm Surge Barrier, completed in 1986, was built to protect the Netherlands from flooding. The aim of this paper is to describe how the Eastern Scheldt Storm Surge Barrier and the existing and proposed tidal energy turbines within it affect harbor porpoises and harbor seals. Both species show individual differences in behavior and in responses to structures and sounds, and the conclusions drawn in this paper may not be valid for all animals in the population.

#### **[Wave-resolved predictions of changes to nearshore flows due to arrays of wave energy converters](#) – Rijnsdorp et al. 2019**

Wave farms consisting of tens to hundreds of devices have the potential to alter the nearshore wave and flow field when located in close proximity to the coast. As a result, wave farms may alter sediment transport pathways and may cause the beach to erode or accrete. This work presents a first effort to improve our understanding of changes to the nearshore wave field and circulation patterns induced by wave farms. A recently developed wave-resolving non-hydrostatic wave-flow model was used to simulate the impact of a moderately sized wave farm on the nearshore wave and flow field.

## Wind Energy

### [Red-throated Diver Energetics Project: Preliminary Results from 2018/19](#) – Duckworth et al. 2020

Red-throated divers (*Gavia stellata*) are known to be displaced by marine industry activities but the energetic, physiological and demographic consequences of displacement are currently unknown. Using biologging methods, novel data on the non-breeding season locations and foraging behaviour of divers breeding in Finland, Iceland and Scotland were obtained. Preliminary analyses of the data found red-throated divers tended to perform shallow dives of 2–6 m depth, rarely diving deeper than 20 m.

### [Pronghorn Winter Resource Selection Before and After Wind Energy Development in South-Central Wyoming](#) – Smith et al. 2020

Few studies have evaluated the response of ungulate populations to wind energy development. Recent demand for wind-generated electricity coupled with a tendency for wind-energy facilities to be sited within suitable pronghorn (*Antilocapra americana*) winter range make this a critical issue for conservation of this icon of western North America. We evaluated pronghorn response to wind energy development at the winter home range scale, as well as within individual winter home ranges using data collected from 47 adult female pronghorn equipped with Global Positioning System transmitters.

### [PHAROS4MPAs: A Review of Solutions to Avoid and Mitigate Environmental Impacts of Offshore Windfarms](#) – Defingou et al. 2019

The capitalization report focuses on impacts of the offshore windfarm sector on the marine environment and relevant mitigation and monitoring techniques. Due to the existing experiences and research projects dating back to the early 1990s, the present report focuses mainly on knowledge gained in the North Sea, Baltic Sea and North-East Atlantic. It is based on an extensive and thorough literature research, only considering scientifically sound research, databases and literature.

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## News & Press Releases

### Marine Renewable Energy

#### [Seabased is Partnering with EMEC to Prepare for Certification](#) – EMEC

Seabased Group has signed an agreement with the European Marine Energy Centre (EMEC) to design and implement a testing programme supporting Seabased's certification goal for its latest generation wave-to-grid wave energy park technology. Certification will pave the way for quality-controlled manufacture. A certified process will enable a reduction in manufacturing costs, logistics and transport, a faster track to

local permitting and insurance, and an opportunity for Seabased to generate local jobs and training for future maintenance of their systems.

### **MeyGen has now exported 24.7 GWh of renewable electricity to the grid – Ocean Energy Europe**

MeyGen's 2019 performance represents the longest period of uninterrupted generation from a multi-megawatt tidal turbine array ever achieved. MeyGen has now exported 24.7 GWh of predictable renewable electricity to the national grid. In 2019 alone, MeyGen exported over 13.8 GWh of predictable renewable electricity, equivalent to the average annual electricity consumption of around 3800 typical UK homes generating a revenue of £3.9m. Phase 1A of MeyGen has generated total revenues since operations commenced of £7.1m as at the end of 2019.

### **The National Hydrogen Centre And PLOCAN Collaborate On The Use Of Hydrogen To Accelerate The Energy Transition In The Ocean Field – PLOCAN**

The National Hydrogen Centre (CNH2) and the Oceanic Platform of the Canary Islands (PLOCAN) will boost the collaboration of their infrastructures and resources in the production of hydrogen from renewable energies as an energy vector in the marine field and in sea applications. The next generation of multipurpose harvesting systems of marine resources will be introduced in a sustainable manner, consolidating hydrogen and water as vectors for high value-added energy storage (MUSICA project).

### **60 kW testing successfully concludes in Orkney Islands – DesignPro Renewable**

Irish company DesignPro Renewables has completed the deployment and successful testing of their 60 kW (DPR60) turbine at Kirkwall in the Orkney Islands, Scotland in conjunction with Leask Marine Ltd. The completely operational turbine and deployment system underwent a comprehensive series of tow testing to prove out all operating systems. Based in Limerick Ireland, DesignPro Renewables is developing and demonstrating 25 kW and 60 kW turbines.

### **Carnegie advances wave kit development – reNEWS**

Australian outfit Carnegie Clean Energy is continuing to progress with the development of its Ceto wave energy technology, following the company's emergence from administration in October last year. Carnegie said it has been completing a range of corporate activities associated with the reinstatement of the business, delivering on the Ceto technology development pathway and operating its Garden Island Microgrid asset. The company will carry out tank testing in April or May at the Cantabria Coastal and Ocean Basin in Spain, after receiving funding from the Marinet2 program.

## **Wind Energy**

### **DOE Announces Funding for Tall Wind Tower Demonstration – DOE**

The U.S. Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy, Wind Energy Technologies Office has announced the selection of GE Renewables to receive \$5 million in DOE funding. GE will test, design and demonstrate a 140-meter wind turbine, formed by a 10-meter 3-D printed concrete pedestal topped with a 130-meter “soft” steel section, with up-tower components installed using a climbing crane. These innovations will help the wind industry overcome the transportation constraints currently hindering tall tower installations in the United States.

### **Wind Turbine Blades Can't Be Recycled, So They're Piling Up in Landfills – Bloomberg Green**

Tens of thousands of aging blades are coming down from steel towers around the world and most have nowhere to go but landfills. In the U.S. alone, about 8,000 will be removed in each of the next four years. Europe, which has been dealing with the problem longer, has about 3,800 coming down annually through at least 2022, according to BloombergNEF. Built to withstand hurricane-force winds, the blades can't easily be crushed, recycled or repurposed. That's created an urgent search for alternatives in places that lack wide-open prairies.

### **Japan Readies First Large-Scale Offshore Wind Project – The Maritime Executive**

Japan's Marubeni Corp. has received financing for the nation's first large-scale commercial offshore wind power project to be established through its Tokyo-based company Akita Offshore Wind Corp. The company will set up 33 turbines at port facilities in Akita and Noshiro. They will have a total power output of 140MW, enough to power around 47,000 homes. Construction is expected to start this month, and the wind farm is expected to be operational by the end of 2022.

### **Ørsted launches programme for carbon neutral supply chain by 2040 – Ørsted**

Ørsted, one of the world's largest renewable energy companies and recently named the most sustainable company in the world, has announced that it will be carbon neutral by 2025 and will reach net-zero emissions across the company's entire carbon footprint by 2040. To decarbonise the supply chain, Ørsted is now launching a programme with the aim of engaging its strategic suppliers in the most carbon-intensive categories of the supply chain: the manufacture of wind turbines, foundations, substations and cables.

### **23 'revolutionary' wind turbines will appear in East Yorkshire field – Hull Live**

An anonymous field in a remote corner of Holderness could soon help revolutionise the design of offshore wind turbines. For experts are set to use land near the village of Albrough as a test site to research new piling techniques for the next generation of turbines in the North Sea. Later this year hydraulic hammers will pummel 23 piles into the ground before engineers from energy firm Ørsted and scientists from Oxford

University start a series of stress tests on the structures as part of a five-year research partnership.