



TETHYS BLAST

November 17, 2017

The bi-weekly Tethys Blast will update you with new information on Tethys, news article 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.

New Tethys Story

As the marine renewable energy (MRE) industry advances and devices are deployed, there is a need to understand potential environmental effect of introducing structures to marine waters and potentially attracting marine organisms. These structures may act as artificial reefs, underwater human-made structures that function similar to a natural reef, and can include oil and gas platforms, sunken ships, concrete reef balls, and MRE devices. [Read more by Sharon Kramer and Olivia Langhamer.](#)

AWEA Siting Conference

The AWEA Wind Project Siting and Environmental Compliance Conference will be held in Memphis, USA on March 20-22, 2018. Leaders from the wind industry, environmental permitting and compliance sector, the scientific community and regulatory officials come together for a robust discussion about the current state of siting and environmental compliance, and network. [Find more information about the conference here.](#)

EIMR Conference is Back!

The conference on Environmental Interactions of Marine Renewables (EIMR) will be held in Orkney, Scotland on April 24th – 27th 2018. The conference focuses on environmental effects of marine renewable energy. [Abstracts are due December 20th 2017.](#) The full announcement for [EIMR can be found here.](#)

METS/IMREC 2018

The Marine Energy Technology Symposium (METS) and the International Marine Renewable Energy Conference (IMREC) will be held as part of Waterpower Week on April 30 - May 2,

2018 in Washington DC, USA. METS oral abstracts are due January 10, 2018 and poster abstracts are due February 15, 2018. [More details are available here.](#)

ICOE to be held in France

The International Conference on Ocean Energy (ICOE) will be held in Normandy, France on June 12th – 14th 2018. ICOE is sponsored by the Ocean Energy Systems (OES) collaboration of nations as a global marine energy event focused on the industrial development of ocean energy. ICOE aims to accelerate development by stimulating collaboration networks between companies, researchers, and development centers. This includes participants sharing recent experiences from research and demonstration efforts. [Abstracts for papers are due November 30th 2017.](#) The full announcement for [ICOE can be found here.](#)

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 introductions to new or popular documents are listed below, accessible by the accompanying Tethys links:

[**Observing Cable Laying And Particle Settlement During the Construction of the Block Island Wind Farm - James et al. 2017**](#)

Key observations, data, findings, and results from two different types of environmental monitoring surveys conducted in and around the Block Island Wind Farm (BIWF) Project Area during its second construction phase are presented in this report. The monitoring was conducted to gather real-time data during the installation of a submarine cable from the mainland at Scarborough State Beach to Block Island's Fred Benson Town Beach. The cable was installed using a customized jet plowing mechanism.

[**Multi-Scale Ocean Response to a Large Tidal Stream Turbine Array - De Dominicis et al. 2017**](#)

The tidal stream energy sector is now at the stage of deploying the world's first pre-commercial arrays of multiple turbines. It is time to study the environmental effects of much larger full-size arrays, to scale and site them appropriately. A theoretical array of tidal stream turbines was designed for the Pentland Firth (UK), a strait between Scotland and the Orkney Islands, which has very fast tidal currents. The practical power resource of a large array spanning the Pentland Firth was estimated to be 1.64 GW on average.

[**Differential Recovery of Habitat Use by Birds after Wind Farm Installation: A Multi-Year Comparison - Farfan et al. 2017**](#)

Onshore wind farms remain one of the most widely used technologies for the production of renewable energy. These are known to affect birds through disturbance or collision. Most research focus on the impact of wind farms on raptors or other large bird species,

especially those of conservation concern. However, limited information exists on the effect of wind farms on small birds. Recovery of large versus small bird populations impacted by wind farms is also largely unstudied.

Evaluating Statistical Models to Measure Environmental Change: A Tidal Turbine Case Study - Linder and Horne 2018

Statistical models are routinely used in Before-After monitoring studies to detect, quantify, and forecast environmental change caused by natural or anthropogenic disturbances. For monitoring programs that have not established standard statistical procedures, an evaluation of models' abilities to measure change over a range of scenarios is vital to develop best practices for analyzing monitoring data. A comprehensive evaluation was developed and applied using Marine Renewable Energy (MRE) tidal turbine site as a case study of a developing industry with no standard monitoring methods.

On the Multi-Scale Interactions Between an Offshore-Wind-Turbine Wake and the Ocean-Sediment Dynamics in an Idealized Framework - A Numerical Investigation - Nagel et al. 2018

We investigate the turbulent dynamics of the coupled atmosphere-ocean-sediment system around a wind turbine. To this end, a coupled two-dimensional idealized numerical model of the ocean and sediment layers, forced by an idealized offshore wind turbine wake is used. The turbine wake impacts the ocean surface and for strong wind and water layer thickness higher than 20 m, large scale eddies of the size comparable to the wake thickness are generated, leading to a turbulent dynamics in the ocean. The turbulence in the ocean is controlled by the shallow wake parameter S .



[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. ORJIP wishes to make you aware of the following opportunities:

- The EU's Executive Agency for SMEs and the European Maritime Fund launched a [call for proposals](#) around environmental monitoring of wave and tidal devices, due by 19 January 2018.
- Funding Ocean Renewable Energy through Strategic European Action (FORSEA) launched their [4th call for support packages](#), due by 29 June 2018.
- Ocean Energy Systems (OES) started the process to receive applications to host ICOE 2020. [Expressions of interest](#) due by March 2018.

News and Current Events

Wind Energy

[Enel Building Wind Farm to Power Facebook Nebraska Data Site](#) - **Bloomberg Technology**

Enel SpA, Europe's biggest utility by market value, started work on a 320-megawatt wind farm in Nebraska to power a new Facebook Inc. data center in the state. Rome-based Enel will invest about \$430 million to build the Rattlesnake Creek plant, according to a statement Tuesday. About 200 megawatts of the plant's output will be sold to Facebook. The data center will be about 120 miles (193 kilometers) from the project site in Dixon County.

[GE and GIG raise €800mn for Swedish wind farm](#) - **Global Trade Review**

GE and Green Investment Group (GIG) have raised €800mn to finance the development of a 650MW onshore wind farm in Sweden. GE and GIG jointly invested €300mn in equity, with a 50-50 split, to purchase the Markbygden ETT project, in northern Sweden, from Svevind. The partners also sought a mix of funding from development institutions, the export credit market and commercial banks familiar with the Nordic energy market.

[UK to help build Chinese wind farms](#) - **China Daily**

British companies will join forces with Chinese developers of offshore wind farms, as part of a new program that lends British expertise to China's \$100 billion wind power expansion plans. The newly formed International Offshore Renewable Energy Research Platform will see United Kingdom companies work on technical solutions for wind farms in the South China Sea, where China plans to install 5 gigawatts of offshore wind capacity by 2020.

[ReNew Power to buy 103-MW wind farm portfolio in India](#) - **Renewables Now**

Indian independent power producer ReNew Power Ventures Pvt Ltd will acquire three fully operational wind parks in Andhra Pradesh totalling 103 MW from the KC Thapar Group, The Economic Times (ET) reports. Kailash Vaswani, deputy chief financial officer at ReNew Power, unveiled the purchase for the newspaper, but gave no financial details regarding the transaction.

[SSE replacing met masts with ZephIR 300 wind Lidar at Scottish wind farm](#) - **Windpower Engineering & Development**

In a competitive tender, SSE has innovated in the area of operational wind-farm anemometry, at its 32-turbine Bhlaraidh Wind Farm located on the Glenmoriston Estate north-west of Invermoriston in the Great Glen, Scotland. The company is displacing traditional tall meteorological masts with a compact, ground-based ZephIR 300 wind Lidar provided by ZephIR Lidar.

Marine Renewable Energy

Wave Swell Energy to Install 200 kW Unit at King Island - Wave Swell

In keeping with the company's philosophy of minimising risk via a carefully staged approach to the development of its technology, Wave Swell Energy will install a 200 kW wave energy device in a more benign wave climate on the eastern side of King Island, prior to the installation of a full-sized 1 MW version on the west coast of the island. This initial smaller project will bridge the gap between the tank testing and commercial phases of the technology's development.

Edinburgh's Tidal Innovator Named Offshore Energy 'Game Changer' - Ocean News & Technology

Edinburgh-based Nova Innovation Ltd has been hailed as a tidal energy game changer by the Offshore Renewable Energy (ORE) Catapult, the UK's leading innovation centre for offshore renewable energy. Nova Innovation is the third company to feature in a series of case studies showcasing those pioneering British companies developing solutions that will support growth in the offshore wind, wave and tidal sectors – bolstering the UK supply chain.

Waves4Power marks 5 months of powering Norway - Tidal Energy Today

Swedish wave energy developer Waves4Power said everything is going according to plan even though the wave climate varied greatly during the five months of interconnection. At this point, Waves4Power is in an intense period of testing and evaluating all components and subsystems of the WaveEL 3.0 wave power buoy at Runde, the company said. The results from these evaluations will provide Waves4Power with information for the ongoing development of the next generation of wave power buoys.

Nova Scotia tidal wins backing - ReNews

Natural Resources Canada has given C\$1m funding for five tidal R&D projects in the province of Nova Scotia. The projects will be overseen by the Offshore Energy Research Association (OERA) under the independent organisation's 'Technology Research and Innovation to Support the Canadian In-stream Tidal Energy Sector' research call.

Wales awards tidal energy efforts - Tidal Energy Today

Wales Green Energy Awards has recognized the achievements of two local tidal energy players during the ceremony held in Cardiff. The awards, held on November 10, 2017, recognized the efforts of the Welsh marine body Marine Energy Wales by selecting the organization as the most outstanding advocate for green energy developments.