TETHYS BLAST

February 9, 2018

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.

Upcoming Workshop

The ICES Working Group on Marine Renewable Energy is holding a workshop in Runde, Norway from 16-18 April. The workshop will address the development marine renewable energy (MRE) approaches to assessing environmental impacts and their application in planning, consenting and regulatory processes. The technologies addressed include tidal (in-stream and lagoon/barrage), wave, and offshore wind. If you are interested in attending the next meeting in should contact the Chairperson by email: finlay.bennet@gov.scot

The International Council for the Exploration of the Sea (ICES) coordinates and promotes marine research on oceanography, the marine environment and ecosystems, and living marine resources in the North Atlantic Ocean and adjacent seas.

Upcoming Webinar

Ocean Energy Systems invites you to a webinar on data and information sharing. The same webinar will be held twice:

- Tuesday February 27th 2018, 16:00 UTC (Tuesday February 27th 2018, 11:00 EST)
- Wednesday February 28th 2018, 00:00 UTC (Tuesday February 27th 2018, 19:00 EST)

Visit OpenEI for more information about the upcoming webinars.

Upcoming Conferences

The Marine Energy Technology Symposium (METS) and the International Marine Renewable Energy Conference (IMREC) will be held as part of Waterpower Week April 30 - May 2, 2018 in Washington DC, USA. METS poster abstracts are due February 15, 2018. More details are available here.

The California Offshore Wind Industry Summit will be held in Sacramento, CA on March 13, 2018. The symposium will feature representatives of the offshore wind industry, key government officials, environmental NGO's, supply chain, and academic leadership to discuss the future of floating offshore wind energy in California.

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:

Harbour seals (*Phoca vitulina*) around an operational tidal turbine in Strangford Narrows: No barrier effect but small changes in transit behavior – Sparling et al. 2017

> Data were obtained from 32 electronic tags that were glued to the fur of harbour seals (*Phoca vitulina*) in and around Strangford Lough, Northern Ireland, during the environmental monitor-ing of the SeaGen tidal turbine. This study provides the first detailed information on the behaviour of marine mammals close to a commercial-scale tidal energy device. The turbine did not prevent transit of the animals through the channel and therefore did not result in a 'barrier' effect.

A Socio-Technical Framework for Examining the Consequences of Deforestation: A Case Study of Wind Project Development in Northern Europe – Enevoldsen 2018

> Wind projects are frequently developed in forested areas, and especially in Northern Europe, due to less restrictions and social opposition, favorable renewable energy policies and, of course, the heavily forested areas in this region of the world. Wind project development in forested areas has an unpreventable impact on nature, namely deforestation. The felling of trees is carried out to free space for the wind turbine installation and potentially also to increase the performance of the wind turbine and lower the levelized cost of energy. This study examines the impact of such a felling strategy, including the environmental and social consequences of deforestation.

Multi-Dimensional Optimisation of Tidal Energy Converters Array Layouts Considering Geometric, Economic and Environmental Constraints - González-Gorbeña et al. 2018

> A study for the optimisation of in-stream tidal energy converter array layout for a three-dimensional fluid flow field is presented. The study involves design of experiments, computational fluid dynamics simulations, surrogate model construction, and constrained optimisation. Linear Radial Basis Functions (RBF) are used to build surrogate models as a function of four design variables: streamwise, spanwise, vertical and staggered spacings, with the purpose of approximating the capacity factor of an array with a fixed number of Tidal Energy Converters (TECs).

Multi-Criteria Decision Analysis in Wind Power Project Development: Case Study in Latvia – Antans 2017

> Wind Power Project Development is a complicated, capital and resource-inclusive process, where a wide variety of factors have to be considered and several stakeholders have a significant say in the process. Decision making in such an environment is complex and has to be approached comprehensively. In order to sustain a structured and clear decision-making process, the sustainable energy industry has recognized Multi-Criteria Decision Analysis (MCDA) method as a suitable set of tools to aid in the decision-making process.

Underwater operational noise level emitted by a tidal current turbine and its potential impact on marine fauna – Lossent et al. 2017

> Marine renewable energy development raised concerns over the impact of underwater noise. We assessed the acoustic impacts of an operating tidal current turbine (Paimpol-Bréhat site, France) on marine fauna. The turbine's source level (SL) was estimated using 19 acoustic drifting transects at distances between 100m to 2400m from the device. SL ranges from 118 to 152dBre1µPa@1m in the third-octave bands at frequencies between 40 and 8192Hz, a noise level comparable to the one emitted by a 19m boat travelling at 10kt. The SL was used to estimate the impact of the turbine's noise based on acoustic propagation simulations.

Bat Diversity, Activity, and Habitat Use in a Mixed Disturbance Landscape – Hollen 2017

> Bat species face multiple threats. One such threat, white-nose syndrome (WNS) has drastically reduced many bat populations. Also, habitat loss and fragmentation often force bats to concentrate in remnant natural areas, or utilize habitats that are not as suitable. Both of these threaten bats in a general sense, but also affect species differently. The Oak Openings Region of Northwest Ohio is a biodiversity hotspot with a landscape composed of remnant natural areas within a matrix of agriculture and urban areas.

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 Offshore Energy Research Association (OERA), in cooperation with Nova Scotia's Department of Energy (NSDOE) and Dalhousie University, has issued a Request for Proposals for testing of innovative technologies and methodologies related to tidal energy at Dalhousie University's Aquatron test tank facility.

News and Current Events

Marine Renewable Energy

US Navy picks Irish wave energy system – The Construction Index

> Ocean Energy's pioneering 'OE Buoy' will be built in the United States by Oregon-based marine-fabrication company Vigor, and deployed at the US Navy's wave energy test site on the Hawaiian Island of O'ahu in autumn 2018. The contract value of is €5.25m out of a total project value of almost €10m for testing.

North Wales Firm Builds Pioneering Tidal Energy Base – Business News Wales

> The bespoke concrete base for a pioneering underwater renewable energy project is set to be floated across the coast of North Wales. The structure, which is part of a €30m (£25m) underwater kite project off Anglesey, was constructed by Ruthin-based Jones Bros Civil Engineering UK. Measuring 21.5m x 12.75m x 5m and comprising 15 hollow sections, it has now been floated in a dry dock at Birkenhead prior to being towed along the North Wales coast to Holyhead.

Wello wins Chinese wave energy contract – Energy Live News

> A Finnish wave energy company is entering the Chinese market after winning a contract. Wello has signed an agreement with CIMC OEI to start the research phase for a wave energy converter (WEC) design for Chinese markets. The wave climate in China is said to be "slightly milder" compared to Northern Atlantic waters, where its Penguin technology has been developed and verified.

Australian wave energy wins grant to test technology at UK hub - RenewEconomy

> An Australian company has won a European Union grant to test its "floating pendulum" wave power generation technology at a marine energy testing site in Cornwall, off the south-west tip of England. The Victoria-based company, AMOG, said on Monday that it had secured the grant through the EU's European Regional Development Fund – to install a scaled-down version of its Wave Energy Converter (WEC) device at the University of Exeter's 'nursery' test site, called FaBTest.

Wind Energy

World's largest offshore wind farm begins construction – Composites World

> Orsted-Hornsea Project One (London, UK), the world's largest offshore windfarm, has begun construction near the eastern UK coast. The first of 174 monopiles have been installed at the site, located 120 km off the Yorkshire coast. When operational, expected in 2020, the 1.2-GW wind farm will produce enough power for more than 1 million homes.

SeaRoc Group to Supply Seabed Analysis for Offshore Wind Farm – The Marine Executive

> SeaRoc Group has been awarded a variation to provide detailed Geographic Information System (GIS) seabed analysis for E.ON Humber Gateway Offshore Wind Farm. E.ON requested the variation to receive more detailed information about the seabed condition as a whole and at detailed locations through the use of spatial analysis. This information will enable Humber Gateway and other agencies to support critical decision making, manage risks and minimize potential impacts to the seabed.

European offshore wind energy reaches record output in 2017 – The Irish Times

> Last year was a record one for offshore wind energy in Europe, according to statistics released on Tuesday by WindEurope. Growth has been driven by reduced costs in installing offshore turbines, efficiencies arising from the size of turbines, and increased capacity, the industry group said. Europe installed 3.1 gigawatts (GW) of new offshore wind, taking total capacity to 15.8GW, an increase of 25 per cent on 2016.

GE Secures Nearly 3 GW of North American Wind Orders – North American Wind Power

> GE Renewable Energy has secured commitments in North America for 2.9 GW of its variably rated 2.2 MW to 2.5 MW onshore wind turbine with a 127-meter rotor. Some of the largest commitments are for projects with Invenergy, Lincoln Clean Energy and Avangrid Renewables, the company says.