TETHYS BLAST

November 3, 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.

Extra Tethys Blast

While we are continuing with a bi-weekly schedule for Tethys Blasts, the timing will shift by a week. So for one week only, you get to enjoy back-to-back Tethys Blasts! Your next Tethys Blast be sent on November 17th (two weeks from today).

EIMR 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 at: https://www.egis.hw.ac.uk/eimr2018/.

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 at: http://icoe2018normandy.eu/.

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:

Tidal Energy: The Benthic Effects of an Operational Tidal Stream Turbine - O'Carroll et al. 2017

> The effect of modified flow on epifaunal boulder reef communities adjacent to the SeaGen, the world's first grid-compliant tidal stream turbine, were assessed. The wake of the SeaGen was modelled and the outputs were used in conjunction with positional and substrate descriptor variables, to relate variation in epifaunal community structure to the modified physical environment. An Artificial Neural Network (ANN) and Generalised Linear Model (GLM) were used to make predictions on the distribution of Ecological Status (ES) of epifaunal communities in relation to the turbulent wake of the SeaGen.

Mobile Demersal Megafauna at Common Offshore Wind Turbine Foundations in the German Bight (North Sea) Two Years after Deployment - Increased Production Rate of *Cancer pagurus* - Krone et al. 2017

> Within the next decades the construction of thousands of different types of large wind turbine foundations in the North Sea will substantially increase the amount of habitat available to reef fauna. To gain first insights which effect these substantial changes in habitat structure and diversity might have on faunal stocks settling on hard substrata, we compared the mobile demersal megafauna associated with the common types of wind turbine foundations ('jacket', 'tripod' and 'monopile with scour protections of natural rock') in the southern German Bight, North Sea.

How Green is 'Green' Energy? - Gibson et al. 2017

> Renewable energy is an important piece of the puzzle in meeting growing energy demands and mitigating climate change, but the potentially adverse effects of such technologies are often overlooked. Given that climate and ecology are inextricably linked, assessing the effects of energy technologies requires one to consider their full suite of global environmental concerns. We review here the ecological impacts of three major types of renewable energy – hydro, solar, and wind energy – and highlight some strategies for mitigating their negative effects.

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

Marine Renewable Energy

Welsh tidal makes headway - reNews

> The gravity base foundation being made by Jones Bros for Minesto's first commercial-scale tidal device due to be installed next year off the north Wales coast is 50% complete. The concrete base measuring 21.5 metres by 12.75 metres by 4.7 metres is being constructed at the Cammell Laird yard in Birkenhead Docks. Jones Bros is using 465 cubic metres of concrete and the final structure will weigh close to 1300 tonnes, it said.

Robotics Principles Help Sandia Wave Energy Converters Better Absorb Power of Ocean Waves - EIN 007

> Compared to wind and solar energy, wave energy has remained relatively expensive and hard to capture, but engineers from Sandia National Laboratories are working to change that by drawing inspiration from other industries. Sandia National Laboratories water power engineers Giorgio Bacelli, left, Dave Patterson, center, and Ryan Coe with Sandia's wave energy converter buoy.

Tocardo to recover Orkney tidal - reNews

Tocardo is to remove its 250kW Temporary Foundation System (TFS) floating tidal platform from the European Marine Energy Centre (EMEC) in Orkney, Scotland. Marine services outfit Leask Marine will transport the Dutch developer's device featuring a Tocardo T2 turbine from berth six of EMEC's grid-connected Fall of Warness site. The TFS will be towed and moored offshore in Isbister Bay until shore operations are ready for recovery, said Leask Marine.

Wind Energy

Ørsted to sell 50% stake in 659MW Walney Extension offshore wind farm - CTBR

Ørsted, formerly Dong Energy has agreed to sell 50% of stake in Walney Extension offshore wind farm to a consortium of Danish pension funds PKA and PFA. As per the agreement, PKA and PFA will acquire 25% stake each in the 659MW offshore wind farm. The remaining 50% of the stake will remain with Ørsted, which will construct and provide long term operations and maintenance services for the wind farm.

World's tallest wind turbine built in Germany - electrek

German company Max Bögl Wind AG has built the world's tallest wind turbine. The turbine 'hub' is 178m (584ft) tall, and the tower's total height – to the tips of the upward extended blades – is 246.5m (809ft). For every meter increase in turbine height, annual energy output is increased 0.5-1% due to lower turbulence and higher wind speeds. The wind turbines are located in Gaildorf, Germany. The project cost €70M ($81M) and is expected to generate €6.5M ($7.6M) revenue per year. It is part of a 'water battery' pilot project.

Siemens Gamesa To Supply Turbines To 281 Megawatt Nordlicht Onshore Wind Farm - Clean Technica

Siemens Gamesa Renewable Energy announced last week that it had received an order to supply 281 megawatts worth of its recently upgraded OptimaFlex wind turbine to the Nordlicht wind project, made up of the Kvitfjell and Raudfjell wind farms in northern Norway. The Nordlicht wind project is currently the largest onshore wind being developed this year, and one of Europe's largest and most innovative developments.