TETHYS BLAST

March 23, 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.

ICES MRE Workshop

The ICES Working Group on Marine Renewable Energy is holding a workshop in Runde, Norway from April 16-18. The workshop will address approaches to assessing environmental impacts from marine renewable energy development and their application in planning, consenting and regulatory processes. The technologies addressed include tidal (in-stream and lagoon/barrage), wave, and offshore wind. Those interested in attending 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.

Register for Upcoming Conferences

The Environmental Interactions of Marine Renewables (EIMR 2018) will be held in Kirkwall, UK on April 24-27, 2018. You can still register for the event.

Don't forget to register for the Marine Energy Technology Symposium (METS) and the International Marine Renewable Energy Conference (IMREC), which will be from April 30 – May 2 in Washington D.C.

The AWEA Windpower Conference will be held in Chicago, USA on May 7-10, 2018. You can register with the advance rate through April 10.

Technology Development and Innovation Open House

In support of the Department of Energy's Technology Development and Innovation (TD&I) Project to address wind wildlife operational challenges, the National Renewable Energy Laboratory is hosting an Open House on June 20 at the laboratory's National Wind Technology Center (NWTC) in Boulder Colorado. The full-day event will provide information on environmental instrumentation characterization and development resources at the NWTC and discuss relevant topics.

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:

First *in situ* Passive Acoustic Monitoring for Marine Mammals during Operation of a Tidal Turbine in Ramsey Sound, Wales – Malinka et al. 2018

> The development of marine renewables has raised concerns regarding impacts on wildlife, and environmental monitoring is often required. They examined 3 months of continuous passive acoustic monitoring (PAM) data collected at the Tidal Energy Ltd. DeltaStream turbine deployment in Ramsey Sound, UK. We aimed to assess the performance of the PAM system at an operational turbine, describe the 3D movements and behaviours of small cetaceans in the vicinity of the turbine, and model changes in detection rates against temporal and environmental variables.

Wind turbines impact bat activity, leading to high losses of habitat use in a biodiversity hotspot – Million et al. 2018

> Previous studies have mainly focused on bat mortality through collision by wind turbines, and very few studies have assessed the indirect impacts on bat activity and on foraging habitat availability. Also, there is a global lack of knowledge on the vulnerability of tropical bat fauna due to wind energy production, even though it is well known that windpower can affect bat communities and biodiversity hotspots are widespread in the tropics. We present one of the first studies to quantify the indirect impact of wind farms on insectivorous bats in tropical hotspots of biodiversity.

2017 Marine Hydrokinetic Instrumentation Workshop Report – Driscoll et al. 2018

> The third Marine Hydrokinetic Instrumentation Workshop was held at Florida Atlantic University’s Sea Tech Campus in Dania Beach, Florida, from February 28 to March 1, 2017. The workshop brought together 37 experts in marine energy measurement, testing, and technology development to present and discuss the instrumentation and data-processing needs of the marine energy industry.

Raptor Interactions with Wind Energy: Case Studies from Around the World – Watson et al. 2018

> The global potential for wind power generation is vast, and the number of installations is increasing rapidly. We review case studies from around the world of the effects on raptors of wind-energy development. Collision mortality, displacement, and habitat loss have the potential to cause population-level effects, especially for species that are rare or endangered. The impact on raptors has much to do with their behavior, so careful siting of wind-energy developments to avoid areas suited to raptor breeding, foraging, or migration would reduce these effects.

The location of offshore wave power devices structures epifaunal assemblages – Langhamer 2016

> With large-scale development of offshore wave power conversion, artificial structures become more common in the open sea. To examine how wave power devices may be colonized by epifaunal organisms, 21 concrete foundations used for anchoring wave power generators were studied during two years, 2007 and 2008. The foundations were placed in two different clusters, located north and south within the Lysekil test site at the Swedish west coast. The degree to which early recruits covered the foundations and the succession of epibenthic communities were documented during two years.

Seabird Flight Behavior and Height in Response to Altered Wind Strength and Direction – Ainley et al. 2015

> The ocean is swept by winds in regionally and seasonally predictable ways, and seabirds have been exploiting these patterns for millennia. Seabird use of wind energy is an under-appreciated aspect of seabird ecology. Using data from 114 cruises spanning the Southern Ocean, Peru Current, California Current and Equatorial Pacific from 1976 to 2006, we evaluate the effect of wind speed and direction on two key characteristics of seabird behavior, flight height and flight behavior.

Ocean Energy orjip working to accelerate offshore consenting

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:

- Innovate UK is providing £15 million to invest in great ideas for new innovations in a range of technology and business areas. The deadline for application is May 9.
- The FORESEA (Funding Ocean Energy through Strategic European Action) programme has launched its 4th call for proposals, due June 29.

News and Current Events

Marine Renewable Energy

Seabased signs deal to install 100 MW wave energy park in Ghana – Hydro Review

> Ghanaian renewables developer TC's Energy has signed a contract with Sweden's Seabased for the design, manufacture and installation of a 100 MW wave energy project off the coast of Ada Foah. The deal, signed yesterday at think tank Ocean Energy Europe's headquarters in Brussels by Seabased CEO Oivind Magnussen and TC's Energy CEO Anthony Opoku, will contribute toward the latter's 1,000 MW power purchase agreement with the Electric Co. of Ghana Ltd.

Three marine energy projects in line for support after FORESEA 4 interim review – Renewables Now

> Three offshore renewable energy projects have been recommended for support under Call 4 of the EU-funded FORESEA programme. The EUR-11-million (USD 13.6m) FORESEA project is designed to help commercialise offshore renewable energy technologies by providing developers with free access to a network of test centres in the UK, France, Ireland and the Netherlands.

Ocean Power Technologies Signs Agreement with Eni S.p.A. to Provide PB3 PowerBuoy™ for Subsea Oil and Gas Operations – OPT Clean Power Technologies

> Ocean Power Technologies, Inc. announced today that the Company has signed an agreement with Eni S.p.A. ("Eni"), one of the world's largest multinational oil and gas companies, to supply a PB3 PowerBuoy™ for a demonstration of one of Eni's subsea oil and gas operations. The agreement provides for a minimum 24-month contract that includes an 18-month PB3 PowerBuoy™ lease and associated project management. OPT will also provide deployment support, remote data collection and monitoring.

Nautricity's tidal turbine up for retrieval – Tidal Energy Today

> Scottish tidal energy developer Nautricity plans to retrieve its CoRMaT tidal turbine installed off Orkney next week. The device, installed at the Fall of Warness grid-connected tidal energy test site of the European Marine Energy Centre (EMEC), will be recovered in an operation set to begin on March 23, 2018.

BiMEP and Tecnalia team up for offshore renewables – Tidal Energy Today

> Research, development and innovation group Tecnalia has signed a collaboration agreement with the Biscay Marine Energy Platform (BiMEP) to provide advanced solutions to accelerate the deployment of offshore renewable energy. The joint collaboration is focused on the standardization and certification of tests of wave energy converters, floating wind turbines and other offshore energy technologies.

Wind Energy

Subsidy-free offshore wind farm to be built in the Netherlands – Climate Action

> Swedish energy company Vattenfall has won the right to build a major non-subsidised offshore wind farm in the Netherlands. The project is one of the first offshore wind farms to ever win a contract without financial support from a government, following a similar auction in Germany last year. The 700-750 megawatt wind farm, called Hollandse Kust Zuid, will be located 14 miles off the Dutch coast, and cover an area of 137 square miles.

World's First Floating Offshore Wind Farm Achieves 65% Capacity Factor after 3 Months – Greentech Media

> Statoil recently announced that its pioneering offshore floating wind farm, Hywind Scotland, achieved an astounding 65 percent capacity factor from November through January. Not only does this far surpass onshore wind farms -- the United States' wind fleet enjoyed an average capacity factor of about 37 percent last year -- it bests America's thermal power generators. EIA data suggests coal and natural-gas combined-cycle power plants will end 2017 with capacity factors in the 54 percent to 55 percent range.

This Utility Wants Excess Texas Wind to Power Electric Cars - Bloomberg

> Sempra Energy Chief Executive Officer Debra Reed sees a big future for electric cars and batteries in Texas now that her company has completed its $9.45 billion purchase of the state's biggest utility Oncor Electric Delivery. "We're kind of the leaders in electric vehicles," Reed said in a phone interview Friday.

Energy Storage Coming to 800 MW Massachusetts Offshore Wind Farm – Power Engineering

> The 800-MW wind project under development off the coast of Massachusetts, will now have an energy storage component. NEC Energy Solutions will provide the energy storage system for Bay State Wind, a partnership between Orsted and Eversource. The companies are calling the development the world's largest wind-paired energy storage system.

UK sets new wind power record as turbines deliver 14 gigawatts for first time – 37 per cent of nation's electricity - Independent

> Wind power in the UK set a new record today by generating 14 gigawatts for the first time – nearly 37 per cent of the country's electricity. The National Grid control room confirmed that 13.9 gigawatts was the highest ever metered wind output.