



TETHYS BLAST

June 9, 2017

Welcome to the latest bi-weekly Tethys Blast, which will update you with new information available on Tethys, new features of Tethys, and current news articles of international interest on wind and marine renewable energy. We hope that this becomes a valuable tool to help you stay connected to your colleagues and to introduce you to new research, new contacts, and ongoing milestones in wind and marine renewable energy development.

Tethys Story: Environmental Monitoring at FORCE

To help address the environmental monitoring challenges and gaps in knowledge faced by tidal energy developers, FORCE developed three Fundy Advanced Sensor Technology (FAST) subsea instrumentation platforms. These platforms are equipped with arrays of environmental sensors to monitor both the physical and biological characteristics of the FORCE test area, and are deployed autonomously or cabled to shore for real-time data viewing and collection. For more details: <https://tethys.pnnl.gov/tethys-stories/remote-sensor-platforms-environmental-monitoring-force-canada>.

PhD Position in Scotland

Unique opportunity for [MASTS](#) PhD in Ecology and Renewable Energy in Scotland: Determining the Ecology and Physics of Tidal-Stream Habitats (DEPTH). The position is hosted by the University of Aberdeen and University of Highlands and Islands, partnering with the European Marine Energy Centre (EMEC) and Marine Scotland Science. The PhD will focus on uncovering the drivers of animal behaviour and distribution in high energy sites and determine how to best monitor and understand their interactions with marine renewable developments. Application deadline is July 16th; [you can apply 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:

Wind Energy Development: Methods to Assess Bird and Bat Fatality Rates Post-Construction - Huso et al. 2016

Monitoring fatalities at wind energy facilities after they have been constructed can provide valuable information regarding impacts of wind power development on wildlife. The objective of this monitoring is to estimate abundance of a super-population of carcasses that entered the area within a designated period of time. By definition, the population is not closed and carcasses can enter as they are killed through collision with turbines, and leave as they are removed by scavengers or decompose to a point where they are not recognizable.

Deep Green Holyhead Deep Project Phase I (0.5 MW) - Environmental Statement - Minesto 2016

The DG Holyhead Deep Project will be the first full-scale deployment of Minesto's tidal energy concept, Deep Green, which uses underwater 'kites' to generate electricity. Deep Green's ability to operate in deep water sites and low velocity currents will open up new areas to tidal energy projects and it is expected to provide significant advantages over fixed turbine technologies in terms of efficiency and operational costs. The Project will pave the way for the first full-scale commercial deployment, representing an important step towards Wales fulfilling its potential to become a world leader in marine renewable energy. [Annex IV has also collected a metadata form on the environmental work at this site.](#)

Will Communities "Open-Up" to Offshore Wind? Lessons Learned from New England Islands in the United States - Klain et al. 2017

National-scale polls demonstrate high levels of public support for developing renewable energy while local opposition has led to delays and cancelations of renewable energy projects around the world. What makes for robust public engagement processes to reject or site renewable energy projects? A literature review reveals numerous considerations, with complexity that impedes their application by practitioners. In this study, we conducted interviews and document analysis to assess the extent to which design principles from the analytic-deliberative process literature arose during public engagement on three New England islands adjacent to proposed offshore wind farms.

A Review of the Current Understanding of the Hydro-Environmental Impacts of Energy Removal by Tidal Turbines - Nash and Phoenix 2017

This paper presents a review of the available published literature on the hydro-environmental effects of energy removal of tidal turbines. Given the limited number of ocean deployments of turbines to date, the relevant literature mostly comprises laboratory studies of singular scaled turbines and CFD model studies of multiple device arrays. The review finds that the hydrodynamic impacts of singular devices are relatively well understood and that it is generally accepted that the far-field effects of singular device deployments, and even small arrays, will be negligible.

[Bats in a Mediterranean Mountainous Landscape: Does Wind Farm Repowering Induce Changes at Assemblage and Species Level?](#) - Ferri et al. 2016

We reported data on flying bat assemblages in a Mediterranean mountain landscape of central Italy on a 5-year time span (2005–2010) where a wind farm repowering has been carried out (from 2009, 17 three-blade turbines substituted an a priori set of one-blade turbines). *Myotis emarginatus* and *Pipistrellus pipistrellus* significantly changed their relative frequency during the three-blade wind farming activity, supporting the hypothesis that some bats may be sensitive to repowering.



[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:

- [Energy Catalyst Round 5 is now open. The Energy Catalyst competition supports innovators addressing business opportunities created by the global need for clean, affordable and secure energy. The deadline for registration is 21st June 2017 and the deadline for applications is 28th June 2017.](#)
- [H2020 Ocean Energy Call opens: LCE-16-2017 2nd Generation of design tools for ocean energy devices and arrays development and deployment. Deadline: 7th September 2017.](#)
- [Offshore Energy Research Association \(OERA\) has launched a research call in Tidal Energy for expressions of interest to be submitted by 19th June 2017. The funding will support new projects that offer innovative and practical technology solutions and novel approaches to resolve fundamental knowledge gaps impacting the tidal sector.](#)

News and Current Events

Marine Renewable Energy

[Waves4Power connects off Norway](#)

Waves4Power has launched a connection hub for its WaveEL wave energy device deployed off the Norwegian coast. Swedish wave energy developer installed the connection hub and laid the cable to connect the device to the shore in an operation assisted by Olympic Shipping. Waves4Power said the device will be connected and ready to export the power via the hub shortly. [Annex IV has also collected a metadata form on the environmental work at this site.](#)

Tidal energy reaches another milestone - FLOTEC Project

The EU-funded FLOTEC project's tidal turbine has now matched the performance of established offshore wind turbines, generating over 18MWh (megawatt-hour) within a continuous 24 hour testing period and heralding an age of more competitive tidal energy supply. Key to FLOTEC's operation is the SR2000 tidal turbine, reputed to be the largest and most powerful in the world.

Japanese firm demonstrates floating wave prototype

Wave Energy Technology has concluded the demonstration trials on its scaled floating wave energy prototype off Kobe city in Japan. The demonstration was conducted on a scaled unit, 1.4 meters in diameter, in mid-May on a jetty at the Port of Kobe, and 3 km further offshore, the Tokyo-based wave energy developer informed.

Marine hydrokinetic energy research continues in Alaska to map ocean floor debris

The Alaska Center for Energy and Power (ACEP) said the Alaska Hydrokinetic Energy Research Center (AHERC) this week conducted a multi-beam survey of Cannon Beach near Yakutat, Alaska, USA to map ocean floor debris and collect bathymetric data. AHERC engineers, Paul Duvoy and Nick Konefal, conducted the work related to marine hydrokinetic (MHK) energy research, which is a part of the Advanced Laboratory and Field Arrays for Marine Energy (ALFA) project funded by the U.S. Department of Energy.

Wind Energy

Australia's First Offshore Wind Farm Proposed for Gippsland

Australians have welcomed plans for the establishment of Australia's first offshore wind farm off Gippsland, Victoria. The proposal includes up to 250 wind turbines within a 574-square kilometer area, which would deliver around 8,000GWh of electricity per year. This is approximately 18% of Victoria's power usage or enough to power 1.2 million homes. Victorian-based Offshore Energy has been working with the Victorian and Commonwealth Governments to progress the proposal to a formal feasibility assessment of the project called 'Star of the South.'

Battery System Readied For Offshore Wind Farm

Dong Energy is to integrate a battery system into its Burbo Bank Offshore Wind Farm. The addition of the 2MW battery system, set to be installed by the end of the year, will enhance the capability of the 90MW wind farm. It will be the first time an offshore wind farm is integrated with a battery system to provide frequency response to help keep the grid frequency stable at 50Hz and maintain the operability of the grid.

Deepwater, US Wind OK terms

Deepwater Wind and US Wind have agreed to the conditions of the Maryland offshore renewable energy credit awards and are moving forward with their projects. The developers must collectively invest \$115m in manufacturing and port facilities in the Sparrows Point/Tradepoint Atlantic area in the Port of Baltimore. US Wind is going ahead with plans “to make Maryland the East coast hub of a vibrant new industry,” project development director Paul Rich told reNEWS.

MHI Vestas Offshore Unveils 9.5 Megawatt Wind Turbine

MHI Vestas Offshore Wind has unveiled the next iteration in its V164 wind turbine series, a 9.5 megawatt turbine that is larger than the giant London Eye ferris wheel. Only four months after the company unveiled its 9 megawatt (MW) wind turbine, MHI Vestas unveiled the latest V164 wind turbine, the V164-9.5 MW. This currently ranks as the “most powerful serially-produced wind turbine in the world,” according to MHI Vestas.