TETHYS BLAST

May 27, 2016

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.

Wind Wildlife Research Meeting - Abstracts

A call for abstracts has been issued for the Wind Wildlife Research Meeting XI, **due by June 10**. More information on submitting an abstract can be found here: http://tethys.pnnl.gov/events/wind-wildlife-research-meeting-xi-abstracts-due.

This meeting will be held in Broomfield, Colorado, USA from November 29 to December 2, 2016.

New Documents on Tethys

A total of 25 new documents have been added to Tethys in the last two weeks! These documents have been hand-selected for their relevance to the environmental effects of wind and marine renewable energy. The listings below are short introductions to several new or popular documents that can be accessed through the accompanying Tethys links:

Unstructured Grid Modelling of Offshore Wind Farm Impacts on Seasonally Stratified Shelf Seas - Cazenave et al. 2016

> Shelf seas comprise approximately 7% of the world's oceans and host enormous economic activity. Development of energy installations (e.g. Offshore Wind Farms (OWFs), tidal turbines) in response to increased demand for renewable energy requires a careful analysis of potential impacts. Recent remote sensing observations have identified kilometre-scale impacts from OWFs. Existing modelling evaluating monopile impacts has fallen into two camps: small-scale models with individually resolved turbines looking at local effects; and large-scale analyses but with sub-grid scale turbine parameterisations.

Modelling the Response of Sandbank Dynamics to Tidal Energy Extraction - Chatzirodou et al. 2015

> In this paper the application of a 3D numerical model covering the area of the Pentland Firth channel (Scotland, UK) to investigate the hydrodynamic and morphodynamic environment related to tidal energy extraction is presented in detail. The open source Delft3D flow model is used. Hydrodynamics of a regional Pentland Firth model provided the boundary conditions for a high resolution local scale model of the Inner Sound sub-channel, an area favoured for in-stream tidal turbines deployment. Investigation of the dynamics of substantial sandbanks located in this region during two spring-neap tidal cycles, under a 'no-energy' extraction scenario, showed that they are highly dynamic and their existence and integrity highly depends on the local flow regime.

Multiple Mortality Events in Bats: A Global Review - O'Shea et al. 2016

> Despite conservation concerns for many species of bats, factors causing mortality in bats have not been reviewed since 1970. Here, we review and qualitatively describe trends in the occurrence and apparent causes of multiple mortality events (MMEs) in bats around the world. We compiled a database of MMEs, defined as cases in which ≥ 10 dead bats were counted or estimated at a specific location within a maximum timescale of a year, and more typically within a few days or a season. We tabulated 1180 MMEs within nine categories.

On the Effect of Offshore Wind Farms on the Atmosphere and Ocean Dynamics - Ludewig 2015

> Renewable energy resources now play an essential role in the energy supply debate, and especially a new interest in wind energy has resulted in the intensified construction of wind farms. Thanks to the growing demand for renewable energy, offshore wind farms (OWFs) are increasingly gaining in popularity, since yields over sea are greater and more reliable than over land. Against this background it is becoming particularly urgent to determine whether and if so to what extent such OWF expansion affects our oceans and local climates.

Monitoring Benthic Habitats and Biodiversity at the Tidal Energy Site of Paimpol-Brehat (Brittany, France) - Carlier et al. 2014

> Marine tidal energy technology is still in its infancy in France and potential environmental impacts on the seabed are virtually unknown. The first French pilot project is currently launched close to Paimpol and the Bréhat Island (Brittany). Environmental monitoring has started in 2012 to assess the baseline of benthic compartment before deployment and the grid-connections of the 4 turbines. The Paimpol-Bréhat tidal site is located on a hard rocky bottom where conventional benthic survey techniques are unsuitable.

Current News

Current news articles of international interest on win and marine renewable energy include:

Green light for construction of £2.6 billion Beatrice offshore wind farm

> The 588MW, 84 turbine project, situated in the Outer Moray Firth, was consented by the Scottish Government in March 2014 and granted an Investment Contract by the UK Government in May 2014. The project has now been approved for manufacturing and construction to begin. Work at the operations and maintenance facility in Wick and the transmission works in Moray will commence this year. Offshore construction will begin in 2017. The wind farm is expected to become fully operational in 2019.

Wave Energy Scotland, EMEC capturing knowledge on wave energy testing

> Wave Energy Scotland has initiated a project with the European Marine Energy Centre (EMEC) to capture the knowledge and experience amassed in Orkney through testing of wave energy devices in real sea conditions. Results from this study are intended to "support and inform the wave energy converter (WEC) designs currently under development," a press release says. "Taking the requirements of open-water testing into consideration at an early stage of the design process will ultimately improve WEC readiness for deployment in real sea conditions."

Lake Erie Offshore Wind Demo Project In Line For Another Federal Grant

> The U.S. Department of Energy is planning to award a USD 3.7 million grant to the Lake Erie Energy Development Corp. (LEEDCo) for the development of the 20.7MW offshore wind demonstration project in Lake Erie, according to local media.

Scotrenewables launches 2 MW tidal energy unit in Belfast

> Marine energy company Scotrenewables Tidal Power has launched what is being billed as the "world's largest energy generating tidal turbine." The company's SR2000, a 2 MW generating unit, is a 550 tonne machine deployed from Harland & Wolfe Heavy Industries Ltd. in Belfast. The turbine will now undergo preliminary trials in Belfast Lough before being towed to the European Marine Energy Centre (EMEC) in Orkney, Scotland, where it will begin a grid-connected test program.

The world's largest floating wind farm will be operational next year

> Norwegian company Statoil is building the world's largest offshore floating wind farm near Scotland – and it's set to start producing energy as early as 2017. The Hywind Scotland Pilot Park wind farm will feature five turbines generating six megawatts of power each.