TETHYS BLAST

February 19, 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 renewable ocean energy development.

Annex IV State of the Science Report

Annex IV is pleased to announce that a draft version of the 2016 State of the Science Report and the executive summary will be available on **23 February 2016**, for public review. This report summarizes the current state of the science for interactions and effects of marine renewable energy devices on the marine environment, the animals that live there, and the habitats that support them. You can learn more on Tethys at: http://tethys.pnnl.gov/publications/state-of-the-science-2016.

New Documents on Tethys

A total of 11 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 marine and wind renewable energy. The listings below are short introductions to several new or popular documents that can be accessed through the accompanying Tethys links:

Characterizing Large River Sounds: Providing Context for Understanding the Environmental Effects of Noise Produced by Hydrokinetic Turbines - Bevelhimer et al. 2016

> Underwater noise associated with the installation and operation of hydrokinetic turbines in rivers and tidal zones presents a potential environmental concern for fish and marine mammals. Comparing the spectral quality of sounds emitted by hydrokinetic turbines to natural and other anthropogenic sound sources is an initial step at understanding potential environmental impacts.

Evaluating the Regional Cumulative Impact of Wind Farms on Birds: How can Spatially Explicit Dynamic Modelling Improve Impact Assessments and Monitoring? - Bastos et al. 2015

> The proposed modelling framework represents a step forward in evaluating the multi-scale cumulative consequences of wind farms on vulnerable birds, using skylarks as a test species. This could be used in the future to guide monitoring efforts and to improve the applicability of the data bases generated by long-term ecological research and monitoring studies.

The Effects of Noise on Aquatic Life II - Popper and Hawkins 2016

> This book presents the papers presented at the Third International Conference on the Effects of Noise on Aquatic Life that took place in August 2013 in Budapest, Hungary. The meeting, like its predecessors in Nyborg, Denmark (2007; Hawkins et al. 2008), and Cork, Ireland (2010; Popper and Hawkins 2012), introduced participants to the most recent research on the effects of man-made noise on aquatic animals and the aquatic environment.

Effects of Acoustic Deterrents on Foraging Bats - Johnson et al. 2012

> Significant bat mortality events associated with wind energy expansion, particularly in the Appalachians, have highlighted the need for development of possible mitigation practices to reduce or prevent strike mortality. Other than increasing turbine cut-in speed, acoustic deterrents probably hold the greatest promise for reducing bat mortality. However, acoustic deterrent effectiveness and practicality has not been experimentally examined and is limited to site-specific case studies.

Airborne and Underwater Noise Assessment at the Pico OWC Wave Power Plant - de Moura et al. 2010

> The recent push for the implementation of full scale Wave Energy Converters has resulted in the successful deployment of some technologies. As a result of a 3 year recuperation and renovation project the OWC in the Pico Island, Azores has recently began to operate on a frequent basis. Consequently, and particularly due to the plausible proximity of this type of technology to populations, the need to assess the noise impacts of this technology has arisen.

The Adhesion of Corrosion Protection Coating Systems for Offshore Wind Power Constructions after Three Years under Offshore Exposure - Momber et al. 2016

> Corrosion protection coating systems for offshore wind power constructions were subjected to offshore conditions on a test site in the North Sea. The systems included organic coatings and duplex (spray metal and organic system) coatings. Special exposure specimens were designed and manufactured and exposed to an offshore environment for three years in order to evaluate their protection performance.

Current News

Current news articles of international interest on offshore renewable energy include:

Japan's wind power capacity seen tripling by 2020

> Japan's wind-power capacity is expected to grow threefold as the two leading developers invest tens of billions of yen in new installations. That would bring the total to the equivalent of 10 nuclear reactors. Eurus Energy Holdings and Electric Power Development, better known as J-Power, each plan to invest around 60 billion yen ($528 million) in new facilities by 2020.

GCAMP – Breaking barriers to offshore wind farm development for Georgia

> Georgia has tremendous offshore wind energy potential, but many barriers stand in the way of making this energy source a reality off our coast. While Europe has been taking advantage of offshore wind for more than 25 years, the first offshore wind farm in the United States is only just under construction off the coast of Rhode Island.

Developers moving forward with Northern Ireland's 100-MW Fair Head tidal energy array

> Developers of the 100-MW Fair Head tidal energy project have announced their plan to move forward in licensing the array with the goal of beginning construction in 2018. The project -- to be located east of Fair Head off the northern Antrim coast -- is being developed by a joint venture including Ireland's DP Marine Energy and Belgium's Bluepower NV. The developers said they have finished a series of assessments and surveys which will now be incorporated into an application for a marine license.

World’s Largest Offshore Wind Farm to Be Built in U.K.

> The U.K. wind energy industry received a boost this week with the announcement of the world’s biggest offshore wind farm, to be built off the northeast coast. Dong Energy said its multi-billion pound Hornsea project, which is expected to power as many as 1 million homes in the region when complete, will occupy more than 400 square kilometers, situated about 120km off the Yorkshire coast.

Carnegie Wave Energy’s CETO 6 unit generating power in Western Australia

> Carnegie Wave Energy Ltd., as part of its US$46 million CETO 6 project, is generating energy from a grid-connected CETO 6 unit off the coast of Garden Island in Western Australia, according to published reports. The Australian Renewable Energy Agency (ARENA) said the unit will provide power for HMAS Stirling, Australia’s largest naval base. The CETO 6 system operates under water, converting ocean wave energy into electricity and desalinated water. Each CETO 6 unit will have a targeted, nominal 1 MW power capacity and transmit that power onshore via subsea cable.