Tethys Blast

June 12, 2015

Welcome to the first June edition of the bi-weekly Tethys Blast!

Tethys Blasts will update you with new information available on Tethys, new features on Tethys, and current news articles of international interest on offshore 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.

We need your help to ensure that Tethys functions at peak performance! Please notify us of any errors or broken links you come across within Tethys. The Tethys team is continuously on the lookout for these, but a short message with the name of the page or URL is extremely helpful! You can provide comments in the comment box on the bottom of each page. Thanks in advance!

New Articles on Tethys

A total of 20 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 offshore renewable energy. The listings below are short introductions to several prominent documents that can be accessed through the accompanying Tethys links:

Marine Renewable Energy and Environmental Interactions: Baseline Assessments of Seabirds, Marine Mammals, Sea Turtles and Benthic Communities on the Oregon Shelf - Henkel et al. 2014

> The wave climate along the west coast of North America presents great opportunities for the development of offshore renewable energy, yet initial assessments of the potential ecological effects of wave energy development have only just started. An enhanced regional understanding of the biological resources in the area is needed, and a key information gap is the distribution of both physical substrata and important biological

communities. An initial renewable energy project targeted for Oregon is a mobile Ocean Test Facility developed by the Northwest National Marine Renewable Energy Center (NNMREC), led by Oregon State University (OSU), for testing wave energy converters.

Long-Term Effects of an Offshore Wind Farm in the North Sea on Fish Communities - Stenberg et al. 2015

Long-term effects of the Horns Rev 1 offshore wind farm (OWF) on fish abundance, diversity and spatial distribution were studied. This OWF is situated on the Horns Reef sand bank in the North Sea. Surveys were conducted in September 2001, before the OWF was established in 2002, and again in September 2009, 7 yr post-establishment. The sampling surveys used a multi-mesh-size gillnet. The 3 most abundant species in the surveys were whiting *Merlangius merlangus*, dab *Limanda limanda* and sandeels *Ammodytidae* spp.

Characterization of the Tanana River at Nenana, Alaska, to Determine the Important Factors Affecting Site Selection, Deployment, and Operation of Hydrokinetic Devices to Generate Power - Johnson et al. 2013

The Tanana River hydrokinetic characterization study started in 2009, when little was known about how river environments in Alaska would affect hydrokinetic power generating devices or how those devices might affect the state's river environments. This project took a broader approach by examining a range of river conditions that include sediment transport and riverbed conditions, river current velocity and turbulence and their seasonal variation, woody debris, fish stocks, and wintertime flow.

Benthic monitoring and sampling design and effort to detect spatial changes: A case study using data from offshore wind farm sites - Franco et al. 2015

The exploitation of renewable energies, in particular offshore wind farms (OWFs), is an expanding sector which involves activities that may adversely affect the marine benthic ecology. Fit-for-purpose monitoring is required with sufficient statistical power to detect ecologically meaningful changes, but to date there have been no studies on the suitability of monitoring programmes applied to OWFs. The theoretical relationship of sampling effort with precision in community estimates and sensitivity of the analysis in detecting spatial changes was investigated, this latter assessed through power analysis. Benthic community monitoring strategies and descriptors applied to UK OWFs were used to interrogate real data variability in the marine environment.

Field Testing of Multiple Sensors in an Underwater Environment Monitoring System - Chan et al. 2014

This paper presents an underwater environment monitoring system, which is designed for deployment with a meteorological mast in the offshore wind farm. The factors of safety, reliable, and extendable capacity are the major design concept. First of all, the demonstration project of the offshore wind farms at Taiwan is going to build three pilot

wind farms and meteorological masts. The measurement of ocean environment is included sea surface wave, sea current, sea surface level, sea temperature and salinity. Thus, the instruments of wave gauge, acoustic Doppler current profiler (ADCP), and conductivity-temperature-depth (CTD) are required for the demonstration project.

Current News

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

Swansea Bay Tidal Energy Scheme Wins Planning Permission

The energy and climate change secretary has given planning permission to one of the most ambitious and potentially expensive "green" energy schemes ever seen in Britain. Amber Rudd agreed to the £1bn project to provide power for 150,000 homes from a tidal lagoon at Swansea Bay.

$1.6B Hawaii offshore wind energy project to be discussed Wednesday

Alpha Wind Energy's planned $1.6 billion offshore wind energy project in federal waters off Oahu's northwest and southern coasts will be discussed at a Wednesday event in Honolulu. The Bureau of Ocean Energy Management will present information on the two unsolicited lease requests received in January from Alpha Wind for a couple of wind energy projects.

Chile Commits to Funding Marine Energy Research Centre

Chile signed a declaration on Tuesday to co-finance the local Marine Energy Research and Innovation Centre, a project awarded last year to French DCNS and Italian Enel Green Power (BIT:EGPW). The first such centre in Latin America will cost USD 20 million (EUR 17.6m), nearly 58% of which will be financed by the state during eight years. Thus, Chile expects to become a regional and world reference in marine energy, taking advantage of its coastline and tides.

Van Oord: Aeolus completes Eneco Luchterduinen offshore wind farm

Van Oord's offshore transport and installation vessel Aeolus successfully completed the installation of 43 wind turbines on the Dutch Eneco Luchterduinen offshore wind farm. Aeolus completed the foundations in the autumn of 2014. The installation of the turbines started early April and was completed on 9 June. At the moment 22 wind turbines are operational, the remaining 21 wind turbines are expected to be operational in July 2015.