TETHYS BLAST

June 23, 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.

Webinar Recordings Available

Annex IV held a webinar on 19 June 2017 about Fisheries Interactions with Marine Renewable Energy Development. This webinar discussed perceived socio-economic impacts and opportunities as well as attitudes of fishermen towards MRE projects under development. A recording is now available on Tethys.

WREN held a webinar on 20 June 2017 about Research Programs to Understand the Environmental Impacts of Offshore Wind, presenting Vattenfall's environmental research program at the European Offshore Wind Deployment Centre (EOWDC) and the Dutch Offshore Wind Ecological Programme (Wozep). A recording is now available on Tethys.

Upcoming Conferences

- The 2017 Offshore Wind Executive Summit will be held in Houston, Texas, USA on August 9-10.
- The 7th International Symposium on Energy will be held in Manchester, UK on August 13-17.
- The 12th European Wave and Tidal Energy Conference will be held in Cork, Ireland on August 27 - September 1.
- The 4th Conference on Wind Energy and Wildlife Impacts (CWW 2017) will be held in Estoril, Portugal on September 6-8.
- The 12th Ocean Renewable Energy Conference (OREC) will be held in Portland, Oregon, USA on September 13-14.
- The ICES Annual Science Conference 2017 will be held in Fort Lauderdale, Florida, USA on September 18-21.
- The 2nd World Congress on Wind & Renewable Energy will be held in London, UK on September 28-29.

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:

Analysis of the Possible Displacement of Bird and Marine Mammal Species Related to the Installation and Operation of Marine Energy Conversion Systems - Long 2017

> This study provides a comprehensive review of the wildlife observed at both EMEC locations since observations began and, specifically, investigates the potential influence of device installation, operation and related activity, upon marine wildlife distribution and abundance. Spatial and temporal variations in relation to wider environmental parameters, unrelated to development activity, are also considered.

Reducing Bat Fatalities at Wind Facilities while Improving the Economic Efficiency of Operational Mitigation - Martin et al. 2017

> Concerns about cumulative population-level effects of bat fatalities at wind facilities have led to mitigation strategies to reduce turbine-related bat mortality. Operational mitigation that limits operation may reduce fatalities but also limits energy production. We incorporated both temperature and wind speed into an operational mitigation design fine-tuned to conditions when bats are most active in order to improve economic efficiency of mitigation. We conducted a 2-year study at the Sheffield Wind Facility in Sheffield, Vermont.

Multi-Scale Temporal Patterns in Fish Presence in a High-Velocity Tidal Channel - Viehman & Zydlewski 2017

> The natural variation of fish presence in high-velocity tidal channels is not well understood. A better understanding of fish use of these areas would aid in predicting fish interactions with marine hydrokinetic (MHK) devices, the effects of which are uncertain but of high concern. To characterize the patterns in fish presence at a tidal energy site in Cobscook Bay, Maine, we examined two years of hydroacoustic data continuously collected at the proposed depth of an MHK turbine with a bottom-mounted, side-looking echosounder.

Landscape-Scale Effects of Single- and Multiple Small Wind Turbines on Bat Activity - Minderman et al. 2017

> While the effects of wind farms on bats are widely studied, effects of small wind turbines (SWTs, here <25 m hub height) remain understudied. SWTs are installed in a wider range of habitats compared to wind farms and their effect on wildlife can therefore be different. While single SWTs can adversely affect bat activity in their immediate vicinity, they are often installed in clusters, and to date, no data are available on whether installation of more than one turbine increases the likelihood of adverse effects on bats.

Onset of Barotrauma Injuries Related to Number of Pile Driving Strike Exposures in Hybrid Striped Bass - Casper et al. 2017

Previous studies exploring injury response to pile driving in fishes presented exposure paradigms (>900 strikes) that emulated circumstances where fish would not leave an area being ensonified. Those studies did not, however, address the question of how many strikes are needed before injuries appear. Thus, the number of strikes paired with a constant single strike sound exposure level (SEL_{ss}) that can cause injuries is not yet clear.

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:

- The European Commission Joint Research Centre has launched a Call for Expressions of Interest for clean energy technology studies.
- The deadline for the Innovate UK Open Programme Round 3 competition is 9th August 2017.
- Offshore Energy Research Association (OERA) has launched a research call for proposed research on marine geosciences, marine renewables (tidal), or seismic/marine sound. The key program driver is to build research capacity in Nova Scotia. The deadline is 17th July 2017.

News and Current Events

Marine Renewable Energy

Scottish Ministers approve Islay tidal energy park

Scottish Ministers have granted permission for a major tidal energy park off the coast of Islay. The 30-turbine West Islay Tidal Energy Park has been approved at a site about three miles off the south-west coast of the island in Argyll and Bute. The DP Marine Energy Limited development will have a generating capacity of up to 30MWh.

US Energy Department Announces $12 Million to Advance Wave Energy

The United States Department of Energy has announced up to $12 million in new projects to support the development of innovative technologies capable of generating reliable and cost-effective electricity from US water resources. The four projects will advance marine and hydrokinetic (MHK) energy technologies, which can harness energy from the nation's oceans and rivers.

Eco Wave Power set for 4.1 MW project in Mexico

Israeli company Eco Wave Power has begun the construction of a 4.1 MW installation near Tepalcates Beach in Manzanillo, Mexico. The project is being undertaken by subsidiary Eco Wave Power Mexico, which has begun work on the plant after receiving approval for the interconnection from Mexico's National Energy Control Center. Already, the company said it has secured more than 5,000 square meters for installation of its equipment, and has completed all of the required environmental assessments.

Ocean Power Technologies Announces PB3 Commercial PowerBuoy® Performance off Kozu-Island, Japan After Eight Weeks of Deployment

Ocean Power Technologies, Inc. ("OPT") announced today that its PB3 commercial PowerBuoy®, which is deployed off Kozu-Island, Japan as part of a previously announced lease, is meeting all of its performance requirements. Closer to home, the commercial PB3 Power Take-Off ("PTO") accelerated life testing, which is conducted at the Company's headquarters in New Jersey, reached over 67 million strokes that simulates over 4 years of ocean operation.

Wind Energy

Senvion to supply turbines for first offshore wind farm in the Mediterranean Sea

Senvion, a global manufacturer of wind turbines, has been appointed by Beleolico Srl, a Belenergia S.A. affiliate, as the supplier for Taranto wind farm. Taranto will be the first offshore plant in the Mediterranean Sea, with a total rated power of 30 MW. The project will feature 10 Senvion 3.0M122, each with a hub-height of 100 meters. The turbines will be located in front of Taranto harbor in the Apulia region (Southern Italy), in a water depth of 4 to 18 meters.

Offshore Wind Energy is at a Turning Point: Next Comes Innovation

This April, Germany's Bundesnetzagentur selected four offshore wind projects–three by Danish firm DONG Energy, one by German EnBW–at an auction some have earmarked as a turning point for the industry. The reason? The auction was subsidy-free, the first of its kind anywhere on earth. Until then, green-minded politicians and state bodies had offered big incentives to build offshore wind farms, for their commitment to environmentally friendly energy.

Dong Energy and Grimsby Institute offering new offshore wind turbine apprenticeships

Dong Energy has joined forces with Grimsby Institute to offer new offshore wind turbine technician apprenticeships. The new three-year apprenticeships will comprise of one year of classroom based learning at the Grimsby Institute followed by two years working on site with Dong Energy.

ROMEO project: reducing cost for offshore wind farm operators

A new flagship European project funded by the Horizon 2020 Programme under the topic LCE-13-2016, ROMEO (Reliable O&M decision tools and strategies for high LCoE reduction on Offshore wind), is seeking to reduce offshore O&M costs through the development of advanced monitoring systems and strategies, aiming to move from corrective and calendar based maintenance to a condition based maintenance, through analysing the real behaviour of the main components of wind turbines (WTGs).