TETHYS BLAST

March 31, 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.

Upcoming Annex IV Webinar

Annex IV is hosting a public webinar on April 25 about the environmental effects of marine renewable energy (MRE) devices related to benthic habitat and community changes, and the effects of artificial reefs, specifically focusing on marine fish and crustaceans. Login instructions are available on Tethys.

WREN Webinar Recording Available

WREN held a webinar on March 28 about the US Bureau of Ocean Energy Management's (BOEM's) Real-time Opportunity for Development Environmental Observations (RODEO) study. The objective of the RODEO study is to acquire real-time observations of the construction and initial operation of wind facilities to aid the evaluation of environmental effects of future facilities. A recording is now available on Tethys.

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:

Behavioral Responses of Fish to a Current-Based Hydrokinetic Turbine Under Multiple Operational Conditions: Final Report - Grippo et al. 2017

Blade strike has been identified as a primary concern associated with the operation of tidal turbines. There have been multiple blade strike studies conducted in laboratory settings using fish exposed to turbines in a confined channel. While these studies indicate fish can avoid blade strike if they swim through a turbine, they do not address what proportion of fish will avoid the turbine completely while swimming through a natural channel. The work described in this report further expands the spatial scale of analysis by using field surveys, hydrodynamic modeling, and behavioral simulations that cover fish response to the turbine hundreds of meters upstream and downstream.

Socio-Economic Impact of Outer Continental Shelf Wind Energy Development on Fisheries in the US Atlantic: Volume I - Report Narrative - Kirkpatrick et al. 2017

Commercial and recreational fisheries play a significant part in the US economy and food supply. In 2011, US landings by US commercial fishermen totaled $5.3 billion in revenue and 4.5 million metric tons. Commercial harvesting alone employed over 186,000 individuals across the US. The nation's fisheries operate alongside a variety of other ocean uses including transportation, natural resource extraction, and energy production. This report assesses the potential impacts to these fisheries and their shoreside dependents from wind energy development on the Atlantic Outer Continental Shelf (OCS).

Assessment of Potential Impact of Electromagnetic Fields from Undersea Cable on Migratory Fish Behavior - Kavet et al. 2016

The US Department of Energy and Bureau of Ocean Energy Management commissioned this study to address the limited scientific data on the impacts of high voltage direct current cables on aquatic biota, in particular migratory species within the San Francisco Bay. To meet the main study objectives several activities needed to be carried out: 1) modeling of the magnetic fields produced by the Trans Bay Cable, 2) assessing the migratory impacts on Chinook salmon smolts and green sturgeon as a result of local magnetic field distortions produced by bridge structures and 3) analyzing behavioral responses by migratory Chinook salmon and green sturgeon to a high-voltage power cable.

Life Cycle Energy and Carbon Footprint of Offshore Wind Energy: Comparison With Onshore Counterpart - Kaldellis and Apostolou 2017

The exploitation of wind energy worldwide comprises one of the main factors for reaching the targets towards a non-fossil fuel era set by many countries. Nowadays, onshore wind power is an established industry with significant contribution to energy production. On the other hand, offshore wind power is an emerging industry where numerous challenges could be faced. Concerning the environmental uncertainties arisen from the greenhouse gas (GHG) emissions of offshore wind power generation, the present work intents to provide a literature review on the life cycle carbon and energy footprint of offshore wind power projects compared to the onshore counterparts.

Underwater Noise Propagation Models and its Application in Renewable Energy Parks: WaveRoller Case Study - Rocha 2016

The purpose of this thesis is to study and quantify the underwater radiated noise from the WaveRoller device using an underwater acoustic model in order to estimate potential effects it may have on the marine environment. The model used to run the data will be MIKE Zero – Underwater Acoustic Simulator by DHI. In the study site only cetacean species are expected to occur. Results showed that behavioural responses might be expected for low and mid-frequency cetaceans if they swim close to the device.

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 second EU-funded Marine Renewables Infrastructure Network (MaRINET2) project plans to launch the first call for applications on April 10 2017. The website will become available on that date.
- A new €17 million ocean energy call to support the development of ocean energy technologies has been launched. Financed by the European Union's Horizon 2020 program, the initiative will open next month to companies and research organisations in Scotland, Brittany, Pays de La Loire, Ireland, Spain, Sweden and the Basque Country.
- Ocean Energy Lectures from Delft University of Technology

News and Current Events

Marine Renewable Energy

France targets 100MW marine: Tender to be launched in Brittany and Normandy

The French government has maintained its target of 100MW installed capacity by 2023 for wave and tidal as it kicks off plans for commercial tenders off Brittany and Normandy. Two deployment zones are being identified by regional authorities in Brittany and Normandy. The zones will accommodate projects of 50-100MW. The tenders will be subject to a competitive tender managed by the French government. The competitive dialogue procedure will be launched later in 2017.

Atlantis strikes deal in Indonesia, plans tidal turbine factory

Atlantis Resources Ltd will be the preferred supplier of turbines, engineering services and equipment for its 150-MW tidal power joint venture project in Indonesia with SBS Intl Ltd. Atlantis announced the signing of the deal with the privately-owned firm on Wednesday, saying that it will seek to build a dedicated facility in Indonesia for turbine assembly, testing, and maintenance.

FORESEA boosts 15 ocean energy developers

The Interreg Europe funded FORESEA programme has awarded 'recommendations for support' to 15 offshore renewable energy technologies following its second call for applications. The awards will provide a real boost to technology developers by allowing them to test their technologies on the open sea, attract further investment, and move further along the path to commercialisation.

Southeast National Marine Renewable Energy Center receives $360,000 National Science Foundation grant

Florida Atlantic University's Southeast National Marine Renewable Energy Center (SNMREC), a United States Department of Energy designated center, has received a $360,000 grant from the National Science Foundation for a "Research Experiences for Undergraduates" project titled "Removing Barriers to Ocean Current Based Electricity through Undergraduate Research."

Wind Energy

Denmark's largest offshore wind farm approved by EU

Denmark's largest ever offshore wind farm project using 600 MW turbines has been approved by the EU commissioner for competition, Margrethe Vestager. "The Kriegers Flak offshore wind farm will help to cut carbon dioxide emissions, while the support is carefully designed to avoid distorting competition in electricity markets," said Vestager.

Vattenfall to invest $1.9 billion in wind power in 2017-2018

Sweden's Vattenfall will invest 17 billion crowns ($1.94 bln) in onshore and offshore wind power during 2017-2018, the state-owned utility said on Tuesday. Spending on wind power will account for 60 percent of an investment program worth 28 billion crowns, highlighting a strategic shift from fossil fuels to renewable energy. The majority of the remaining funds will go to solar power and distribution.

Planning approval granted for Dounreay Trì floating offshore wind demonstrator

The Dounreay Trì floating offshore wind demonstration project off the Scottish coast has been granted planning approval by Scotland's minister for business, innovation, and energy, Paul Wheelhouse. The two-turbine demonstration project will be located approximately six kilometres off the Caithness coastline. The demonstration project will have a capacity up to 12MW.

Deepwater Wind Offshore Wind Energy Cable Would Be Seen Onshore One Winter Only

If 15 wind turbines, each 600 feet tall, are constructed in the Atlantic Ocean east of Montauk to send enough electricity to power all of the South Fork, the only physical evidence of the project in East Hampton itself would be the installation of an underground 40-mile-long cable. Engineers said this week that all the onshore installation work, snaking the approximately 9 miles from northern Amagansett to the LIPA substation in East Hampton Village, would be performed over one winter off-season so as to minimize traffic disruptions.