TETHYS BLAST

November 11, 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.

New Documents on Tethys

New documents are added to Tethys every two weeks, 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:

Collision and Displacement Vulnerability Among Marine Birds of the California Current System Associated with Offshore Wind Energy Infrastructure - Adams et al. 2016

> Looking forward, offshore wind-energy infrastructure (OWEI) has the potential to produce a significant proportion of the power needed to reach our Nation's renewable energy goal. Herein, we present a comprehensive database to quantify marine bird vulnerability to potential offshore wind-energy infrastructure in the California Current System (CSS). These data were used to quantify marine bird vulnerabilities at the population level. For 81 marine bird species present in the CCS, we created three vulnerability indices: Population Vulnerability, Collision Vulnerability, and Displacement Vulnerability.

Identifying Relevant Scales of Variability for Monitoring Epifaunal Reef Communities at a Tidal Energy Extraction Site - O'Carroll et al. 2017 (early release)

> The SeaGen tidal energy turbine is located in the Strangford Narrows, Northern Ireland. The Narrows are designated as a Natura 2000 site, host unique biological assemblages and exhibit very high tidal velocities. This study describes an asymmetrical BACI design monitoring program that was aimed at assessing the potential impact the SeaGen may have on epifaunal boulder reef communities.

Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts - National Oceanic and Atmospheric Administration 2016

> This document provides technical guidance for assessing the effects of underwater anthropogenic (human-made) sound on the hearing of marine mammal species under the jurisdiction of the National Marine Fisheries Service (NMFS) and was completed in collaboration with the National Ocean Service (NOS), Office of National Marine Sanctuaries. Specifically, it identifies the received levels, or acoustic thresholds, at which individual marine mammals are predicted to experience changes in their hearing sensitivity (either temporary or permanent) for acute, incidental exposure to underwater anthropogenic sound sources.

Ecological Impact Assessments Fail to Reduce Risk of Bat Casualties at Wind Farms - Lintott et al. 2016

> Demand for renewable energy is rising exponentially. While this has benefits in reducing greenhouse gas emissions, there may be costs to biodiversity. Environmental Impact Assessments (EIAs) are the main tool used across the world to predict the overall positive and negative effects of renewable energy developments before planning consent is given, and the Ecological Impact Assessments (EcIAs) within them assess their species-specific effects.

Attraction To and Avoidance of Instream Hydrokinetic Turbines by Freshwater Aquatic Organisms - Cada & Bevelhimer 2011

> The development of hydrokinetic (HK) energy projects is under consideration at over 150 sites in large rivers in the United States, including the Mississippi, Ohio, Tennessee, and Atchafalaya Rivers. These waterbodies support numerous fish species that might interact with the HK projects in a variety of ways, e.g., by attraction to or avoidance of project structures. Although many fish species inhabit these rivers (about 172 species in the Mississippi River alone), not all of them will encounter the HK projects.

working to accelerate offshore consenting

Events:

ORJIP Ocean Energy, a collaborator with the Annex IV project, will be attending the following events in the coming weeks, please get in touch should you wish to meet up with the team:

- World Ocean Council's Sustainable Ocean Summit in Rotterdam on November 30-December 2 (http://oceancouncil.org/).
- Marine Renewable Energy Research Day at the European Parliament in Brussels November 30 (https://webgate.ec.europa.eu/maritimeforum/en/node/3980)

Current News

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

Marine Renewable Energy

Cape Sharp Tidal installs first of two 2MW turbines in Bay of Fundy's Minas Passage

> Several months after receiving approval from Nova Scotia's Department of Environment to deploy two 16-metre, 1,000 tonne turbines in the Bay of Fundy's Minas Passage, Cape Sharp Tidal has finally submerged the first of the OpenHydro Open-Centre 2MW turbines at the Fundy Ocean Research Centre for Energy (FORCE), near Parrsboro.

Wave energy device successfully deployed at BiMEP site

> The final section of a sophisticated wave energy device has been successfully installed by a collaborative research team in the Bay of Biscay, on the northern coast of Spain. The new device, dubbed Marmok-5, uses waves power to spin turbines that drive an associated electricity generator, which can produce up to 30kW – enough to run a medium sized business.

EU plans €320m funding boost for budding ocean energy industry

> The EU is proposing to spend hundreds of millions of euros to help the budding ocean energy industry to provide a tenth of the bloc's power by 2050. The boost would take the form of a €250m investment fund, with an additional €70m set aside for insurance, loans and guarantees, according to the roadmap for channelling the potential of wave and tidal energy.

Ocean environment of Orkney replicated

> Two of the world's leading ocean energy test centres have joined forces to replicate the wild ocean environment of Orkney in a state-of-the-art test facility in Edinburgh. The project, a collaboration between the European Marine Energy Centre (EMEC) in Orkney and FloWave Ocean Energy Research Facility at the University of Edinburgh, began in 2012 with the aim of substantially improving the accuracy of replicating open ocean conditions at tank scale.

Carnegie Wave Energy to change name to Carnegie Clean Energy

> Subject to shareholder approval, Carnegie will change its name to Carnegie Clean Energy Ltd. and will from then trade on the Australian Stock Exchange (ASX) under a new ASX code of CCE. The name change follows the recent acquisition of 100% of leading solar and battery microgrid developer, Energy Made Clean (EMC).

Wind Energy

The U.S.'s First Offshore Wind Farm Is Scheduled to Open This Month

The first offshore wind farm in the U.S. is scheduled to begin operations this month off the coast of Rhode Island—a small but notable step forward, given that other offshore projects have run into stiff headwinds this side of the Atlantic. The five turbines that make up the Block Island Wind Farm will generate 30 megawatts of electricity—enough to power 17,000 homes on average.

France awards contracts to build 48MW of floating wind projects

France’s energy ministry has awarded contracts to build 48MW of floating wind projects in the Mediterranean Sea. EDF Energies Nouvelles (EDF EN), the renewables arm of electric utility EDF, has been selected for the development of the 24MW PGL floating wind farm at the Faraman site located 15km off the coast.

Vattenfall wins tender to build the largest offshore wind farm in the Nordics

Vattenfall has won the tender to build Danish Kriegers Flak, a 600-MW offshore wind farm in the Baltic Sea. The winning bid was EUR 49.9 per MWh, which is among the lowest costs in the world for offshore wind power.

'India to get electricity from offshore wind energy in 5 yrs'

India will get electricity generated by wind-propelled plants installed in Gujarat and Tamil Nadu in about five years as part of the country's green energy development programmes, an energy expert has said. "We are preparing India for offshore wind (and) providing MNRE a road map for offshore wind for Gujarat and Tamil Nadu."