TETHYS BLAST

July 13, 2018

The bi-weekly Tethys Blast will update you with new information on Tethys, news article of international interest, and opportunities in wind and marine renewable energy. We hope you find this a valuable tool to keep you connected to colleagues, new research, opportunities, and industry milestones.

Webinar Recordings Available

A *Tethys Wind Webinar* was held on 25 June 2018, featuring resources and content available on Tethys, with a focus on wind energy. The presentation and a recording of the webinar are now available on Tethys: https://tethys.pnnl.gov/events/tethys-wind-webinar

A webinar on *Using Underwater Video to Monitor Fish around Ocean and River Energy Devices* was held on 2 July 2018, discussing techniques for collecting and analyzing underwater video. A recording of the webinar is now available on Tethys: https://tethys.pnnl.gov/events/tethys-webinar-using-underwater-video-monitor-fish-around-ocean-and-river-energy-devices

Annex IV Metadata Updates

As part of the international Annex IV collaboration, information about marine renewable energy projects, test sites, and research initiatives around the world are made available on Tethys. The content is updated by developers and researcher involved in the work every 12-18 months. The following forms were recently updated:

- Electromagnetic Field Impacts on Elasmobranch and American Lobster Movement and Migration from Direct Current Cables
- Folkecenter Wave Test Station
- Fundy Ocean Research Center for Energy (FORCE) Test Site
- Ocean Plug

US DOE to Fund Advanced Wind Research to Reduce Costs and Improve Environmental Performance

US Department of Energy's Wind Energy Technologies Office has released a Notice of Intent regarding a Funding Opportunity Announcement (FOA) entitled "Advanced Wind R&D to Reduce Costs and Improve Environmental Performance." This FOA will support efforts aimed at catalyzing technical and operational solutions to reduce environmental compliance costs and improve environmental performance of turbines. The FOA is anticipated to fund projects aimed at the following:

- Reducing costs and improving performance associated with bat curtailment at wind farms
- Developing advanced components and other instrumentation aimed at developing deterrent technologies that could be used in lieu of curtailment in the future
- Developing offshore wind instrumentation for environmental monitoring and mitigation.

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:

Fine-Scale Hydrodynamic Metrics Underlying Predator Occupancy Patterns in Tidal Stream Environments – Lieber et al. 2018

> Whilst the development of the tidal stream industry will help meet marine renewable energy (MRE) targets, the potential impacts on mobile marine predators using these highly dynamic environments need consideration. Environmental impact assessments (EIAs) required for potential MRE sites generally involve site-specific animal density estimates obtained from lengthy and costly surveys. Recent studies indicate that whilst large-scale tidal forcing is predictable, local hydrodynamics are variable and often result in spatio-temporal patchiness of marine predators.

Dodging the blades: new insights into three-dimensional space use of offshore wind farms by lesser black-backed gulls *Larus fuscus* – Thaxter et al. 2018

> GPS telemetry is improving our understanding of the way animals interact with their environment. Recent research has used this technology to assess the impact of offshore wind farms (OWFs) on seabirds, but few studies have collected fine-scale data from birds flying within OWFs. We use GPS telemetry to investigate movements of lesser black-backed gulls *Larus fuscus* in relation to OWFs from a protected site with an active breeding colony.

Deployment characterization of a floatable tidal energy converter on a tidal channel, Ria Formosa, Portugal – Pacheco et al. 2018

> This paper presents the results of a pilot experiment with an existing tidal energy converter (TEC), Evopod 1 kW floatable prototype, in a real test case scenario (Faro Channel, Ria Formosa, Portugal). A baseline marine geophysical, hydrodynamic and ecological study based on the experience collected on the test site is presented. The collected data was used to validate a hydro-morphodynamic model, allowing the selection of the installation area based on both operational and environmental constraints.

East Anglia ONE North Offshore Windfarm Scoping Report – ScottishPower Renewables UK 2017

> This Scoping Report supports a request for a formal Scoping Opinion from the Planning Inspectorate in relation to the proposed East Anglia ONE North offshore windfarm. This Scoping Report has been prepared in accordance with Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 which enables an applicant to seek a Scoping Opinion from the Planning Inspectorate on the information to be included in an EIA.

Marine Spatial Planning Advancing the Ecosystem-Based Approach to Coastal Zone Management: A Review - Domínguez-Tejo et al. 2016

> A coupled framework of the Ecosystem-Based Approach with Marine Spatial Planning has been discussed and promoted by coastal managers for more than a decade. The proposed framework supports a balanced approach between development needs and the natural environment. This paper presents a qualitative review of Marine Spatial Planning case studies to gain insights into methodological approaches that account for human systems as components of the coastal environment.

News and Current Events

Marine Renewable Energy

SIMEC Atlantis to retrieve two MeyGen turbines for repairs – Renewables Now

> SIMEC Atlantis Energy Ltd, the developer of the up-to-398-MW MeyGen tidal stream project in Scotland, said today two of the turbines of the project's 6-MW Phase 1A will be retrieved for potential repairs.

First ScotMER Symposium: Marine Renewables and Seabirds – Marine Scotland

> Marine Scotland are organising a symposium on 2 October 2018 about interactions between seabirds and marine renewables, this will be the first symposium of the Scottish Marine Energy Research (ScotMER) programme which will be introduced at the event.

TTT turbines spin back to Strangford Lough flows – Marine Energy Biz

> Two tidal turbines, equipped with range of sensors, have been redeployed in Northern Ireland for research purposes as part of the third phase of the Tidal Turbine Testing (TTT) project. According to the research fellow leading the TTT3 project, Carwyn Frost, the two 1.5m diameter tidal turbines have been installed on the research platform – designed and commissioned by Queen's University Belfast – with the support of Cuan Marine Services (CMS).

$50M Oregon wave test center locks down shoreside parcel, gets new name – Portland Business Journal

> Oregon State University has purchased five acres of land for the shoreside piece of the major wave energy test center it's building, which by the way has a tidy new name. Formerly known as the Pacific Marine Energy Center-South Energy Test Site — frequently shortened to the equally tuneless PMEC-SETS — the $50 million project is now PacWave.

Minesto initiates DG500 commissioning program - Minesto

> Marine energy developer Minesto has initiated the commissioning program of its first tidal energy project in commercial scale in North West Wales, with initial sea trials of the company's DG500 tidal energy converter taking place in Holyhead harbour and the Holyhead Deep site.

WaveSub Successfully Installed at FaBTest – Marine Power Systems

> Marine Power Systems (MPS) has successfully installed its prototype WaveSub wave energy converter at marine test centre FaBTest, marking the start of a new phase of sea-based testing. The WaveSub will now run through the final stages of on-site commissioning before energy generation tests kicks off later this summer.

Wind Energy

Vestas to deliver 112 MW turnkey solution for Palisade's Granville Harbour Wind Farm – Vestas

> Australian-based Palisade Investment Partners Limited (Palisade) has placed a 112 MW turnkey order with Vestas for the Granville Harbour Wind Farm in Tasmania, Australia. Vestas has developed a solution with Palisade that is customised to Tasmania's excellent wind conditions, and that will provide low-cost renewable energy that can power more than 46,000 local homes.

New online source shows East Coast offshore wind projects – Work Boat

Mariners have a new source for information about offshore wind energy projects proposed off the East Coast. Offshore Wind in the Northeast Region is a new webpage compiled by the New England and Mid-Atlantic Fishery Management Councils that shows all planned and potential offshore wind energy lease areas to date from southern New England to Cape Hatteras, N.C.

ABB wins $150 million order for world's biggest offshore wind farm - Reuters

ABB has won orders worth more than $150 million from Danish energy company Orsted to supply technology to transmit wind energy from Hornsea Project Two, slated to be the world's largest offshore wind farm.

Nordex scores biggest ever single contract - Reuters

German wind turbine maker Nordex on Tuesday said it had won a contract to supply and install 191 wind turbines with a capacity of 595 megawatts in Brazil, marking the company's biggest ever single contract to date. The order from Italian utility Enel is for the Brazilian wind farm Lagoa dos Ventos, which is located in the north of the country.

First Great Lakes offshore wind project scores tentative Ohio approval – Utility Dive

Staff of the Ohio Power Siting Board (OPSB) have given tentative approval to the first offshore wind project in the Great Lakes, but developers will still need to take a range of mitigation measures and prove the turbines will not harm birds or bats before any final sign-off.

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:

- NeSSIE (North Sea Solutions for Innovation Corrosion for Energy) project consortium launches first stage of competition to implement projects demonstrating anti-corrosion solutions in offshore renewables. Due 7 August 2018.