TETHYS BLAST

January 26, 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.

Upcoming Conferences

The Asian Wave and Tidal Energy Conference (AWTEC) will be held in Taipei, Taiwan on 9-13 September 2018. Conference topics will span technical, policy, finance, and environmental subjects related primarily to wave and tidal energy. The abstract deadline was extended to 1 February 2018.

The Marine Energy Technology Symposium (METS) and the International Marine Renewable Energy Conference (IMREC) will be held as part of Waterpower Week April 30 - May 2, 2018 in Washington DC, USA. METS poster abstracts are due February 15, 2018. More details are available here.

The California Offshore Wind Industry Summit will be held in Sacramento, CA on March 13, 2018. The symposium will feature representatives of the offshore wind industry, key government officials, environmental NGO's, supply chain, and academic leadership to discuss the future of floating offshore wind energy in California.

New Webinar Series

A Berkeley Lab 4-part webinar series, *Understanding Wind Project Neighbors through a National Survey of Attitudes*, held every other Tuesday at 1 PM ET / 10 AM PT. Register for the webinar series at links below:

- January 30, 2018 - Overall Analysis of Attitudes of 1,700 Wind Power Project Neighbors
- February 13, 2018 - Wind Power Project Planning Process Fairness and Attitudes
- February 27, 2018 - Predicting Audibility Of and Annoyance To Wind Power Project Sounds Using Modeled Sound
- March 13, 2018 - Comparing Strongly Annoyed Individuals with Symptoms near U.S. Turbines to Those in Surveyed European Communities

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:

Environmental Interactions of Tidal Lagoons: A Comparison of Industry Perspectives – Mackinnon et al. 2018

> Tidal lagoons are an attractive renewable energy option that could aid the UK in meeting its ambitious renewable energy targets. One of the main barriers to tidal range development in the UK to date has been regulatory environmental concern. In order for the nascent lagoon industry to move forward into development, the views of the developers and other influential stakeholders such as government bodies, regulators, conservationists and practitioners (herein referred to as 'influencing stakeholders' or 'influencers') need to be aligned.

Obligations and Aspirations: A Critical Evaluation of Offshore Wind Farm Cumulative Impact Assessments – Willsteed et al. 2018

> Proponents of marine renewable energy worldwide highlight that regulatory and consenting procedures are a significant barrier to the upscaling of infrastructure required to transform the energy generation sector. Uncertainties about the cumulative effects of marine renewable energy developments cause substantial delays during the consenting process, which are exacerbated by the lack of clarity about how to assess cumulative effects. These obstacles have contributed to perceptions that this essential emerging industry receives disproportionate scrutiny relative to established maritime activities.

Triton: Igiugig Fish Video Analysis – Matzner et al. 2017

> Tidal and instream turbine technologies are currently being investigated for power generation in a variety of locations in the US. An environmental permitting and consenting requirement parallels this exploration generating the need to ensure little or no harm, in the form of strike or collision, befalls marine animals from device deployments. Monitoring methods (e.g., underwater cameras, active acoustics, passive acoustics) around turbine deployments provide empirical data allowing regulators and other stakeholders to assess risk.

Using GPS Transmitters to Explore Movement Ecology and to Assess Risk of the Wind Energy Industry for Swainson's Hawks – Watson et al. 2017

> Swainson's hawks (*Buteo swainsoni*) are a long-distance migratory species that breed in western North America and winter in Argentina. As a grassland species, they can also be found in agricultural settings, such as croplands and pastures. Wind energy is expanding rapidly across the breeding range of the population we chose to study, and we suspect the industry is also expanding in their wintering range and across the migratory pathway. Wind turbines pose a threat to birds, and migratory species may be especially susceptible

to turbine-related mortality when these structures are placed in important migratory pathways.

A Review of Methods and Models for Environmental Monitoring of Marine Renewable Energy – Bender et al. 2017

A continued expansion of the marine renewable energy sector will result in an increased demand in monitoring the natural marine environment. This may be due to a basic scientific interest but is foremost linked to the requirement of pre-and post-construction studies in relation to environmental impact assessments and consenting processes for marine renewable energy projects. With focus on wave and tidal power, but without attempting to provide a comprehensive list, we review methods, technologies and other scientific tools used for monitoring and predicting possible impacts from marine energy installations, on both population and behavioural levels.

A Spatial Analysis for Ecologically Conscious Wind Farm Siting in the Pacific Northwest – Moore 2017

As renewable energy resources are increasing availability, there is evidence to suggest that the renewable alternatives have numerous ecological impacts that should be addressed before developers proceed to mass produce energy. Birds are particularly vulnerable to experiencing population decline as a result of mortality from collision with wind turbines and displacement from habitat in which the wind farms are developed. The presently used mortality rate is based on rates at individual wind farms rather than on a collective rate for wind farms along flyways.

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 Canadian federal government has launched a C$200m funding scheme for less-established renewable technologies such as tidal, offshore wind, and geothermal.
- The Offshore Energy Research Association (OERA), in cooperation with Nova Scotia's Department of Energy (NSDOE) and Dalhousie University, has issued a Request for Proposals for testing of innovative technologies and methodologies related to tidal energy at Dalhousie University's Aquatron test tank facility.

News and Current Events

Marine Renewable Energy

CorPower deploys C3 wave energy converter at EMEC - EMEC

> CorPower Ocean has successfully installed their half-scale C3 wave energy converter (WEC) at the European Marine Energy Centre (EMEC) in Orkney, Scotland. The C3 point absorber was installed at EMEC's Scapa Flow scale test site in collaboration with local marine contractor Green Marine (UK) Ltd. The device was towed to site and the surface operated install sequence was successfully performed from the Green Isle multicat vessel. The C3 WEC was connected to a floating microgrid unit provided by EMEC.

Seabased grabs ownership of Sotenäs test & demo site – Tidal Energy Today

> Swedish wave energy developer Seabased has unveiled plans to conduct several demonstration projects at Sotenäs test and demonstration area following the site ownership transfer from Fortum. In late 2017, Fortum handed over ownership of Sotenäs site to Seabased which intends to use it for both environmental testing and open-sea testing and demonstration of its own technology.

Nova Scotia issues call for tidal energy demonstration projects – CBC News

> The province is looking for companies to test their renewable energy systems in the Bay of Fundy and the Bras d'Or Lakes. The program will allow for a total of up to 10 megawatts of energy generated from the two sites. "We've seen new innovative designs in tidal and the industry is moving very quickly in advancing the sector and we wanted to provide an opportunity for these companies to test their devices and prove them," said Sandra Farwell, the director of sustainable and renewable energy with the provincial Energy Department.

Cork pops at Belfast RE centre: €9.7m cross-border research initiative opens at Queen's University - ReNews

> A €9.7m cross-border research centre for renewable energy projects has opened at Queen's University Belfast, Northern Ireland. The Bryden Centre for Advanced Marine and Bio-Energy Research will recruit 34 PhD students across the marine and bio-energy disciplines. The centre is funded by the EU's Interreg VA Programme and managed by the Special EU Programmes Body (SEUPB). The project will be co-funded by the Department for the Economy in Northern Ireland and the Department of Business, Enterprise and Innovation in the Republic.

Sea-launch of prototype wave device marks start of new test phase – Marine Power Systems

> UK marine technology development company Marine Power Systems (MPS) has successfully launched its wave energy device the WaveSub onto open water, marking the start of a new phase of sea-based testing for the device. The 1:4 scale prototype of the WaveSub wave energy converter was launched in Milford Haven and has already completed the first steps of an initial phase of testing by successfully demonstrating its ability to be easily towed and safely accessed whilst in its surface configuration.

Wind Energy

World's Largest Offshore Wind Farm Could Send Power to Five Countries - EcoWatch

> The Netherlands, famous for its iconic windmills, is planning to build the largest offshore wind farm on Earth by 2027. The vision is so massive that the developers will have to construct a 2.3-square-mile artificial island in the North Sea to support the 10,000-turbine complex. The proposed wind farm, spearheaded by Dutch electric grid operator, TenneT, could produce 30 gigawatts of power—or enough electricity to power a city of 20 million people. That's more than twice the amount of offshore wind power installed across Europe today.

DNV GL Alliance for Offshore Wind Energy Development in Vietnam – Marine Link

> Singapore-based Enterprize Energy and partner Renewable Energy Global Solutions, together with PetroVietnam consortium comprising Petroleum Equipment Assembly & Metal Structure and VietSovPetro, MHI-Vestas Offshore Wind, and DNV GL signed a series of exclusive Agreements forming an alliance for multi-phased, utility-scale wind developments, offshore Southern Vietnam, including feasibility, environmental, development, financing planning through implementation.

Dynamic cable to connect Kincardine floating offshore wind farm in the UK – Subsea News

> Prysmian Group, world leader in the energy and telecom cable systems industry, has been awarded a new contract by Cobra Wind International Ltd to provide the cable system to connect the Kincardine Floating Offshore Wind Farm to mainland UK. This is the Group’s first cable project for a floating offshore wind farm which foresees the design and supply of two export cables as well as inter-array cables.

Research project aims to turn excess wind energy into hydrogen – Irish Times

> An international research project involving NUI Galway hopes to find a way to avoid wasting excess wind energy by turning it into very pure hydrogen gas. Have you ever wondered what happens if it gets just too windy and the time comes to switch off surplus wind power? At the moment the excess is just ploughed into the earth and lost as heat, but an international consortium known as Gencomm seeks to reverse this loss by turning it into hydrogen.

U.S. wind power expected surpass hydro in 2018 - Chron

> Wind is expected to surpass hydroelectric power in 2018 as the largest source of renewable power in the U.S., according to the U.S. Department of Energy. Hydro power was one of the first technologies used to generate electricity, and has remained the nation's dominant source of renewable power even as wind and solar power have grown rapidly in the past few years.