TETHYS BLAST

February 22, 2019

The bi-weekly Tethys Blast will update you with new information on Tethys, news articles 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 Webinar

The BioFREE (Biofouling in Renewable Energy Environments) project is hosting a webinar on 1 March 2019 that will discuss current environmental research efforts in relation to tackling biofouling. More information and login instructions are available on Tethys.

Upcoming Conference

The Waterpower Week will be held in Washington DC on 1-3 April 2019. There will be sessions around the National Hydropower Association and the International Marine Renewable Energy Conference (IMREC), and a poster presentation hosted by the Marine Energy Technology Symposium (METS). You can find more information and register here.

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 excerpts from new or popular documents are listed below, accessible by the accompanying Tethys links:

Marine Mammal Behavioral Response to Tidal Turbine Sound – Polagye et al. 2018

> The sound emitted by tidal turbines overlaps with the generalized hearing ranges for marine mammals and may, consequently, affect marine mammal behavior. Because of the strong environmental protections for marine mammals, these effects are of interest to resource agencies and project developers. The primary goal of this project is to improve the understanding of how sound emitted by tidal turbines may affect marine mammal behavior, with the intent that such understanding may allow this environmental risk to be "retired" for initial demonstrations and arrays.

Migratory bats are attracted by red light but not by warm-white light: Implications for the protection of nocturnal migrants – Voigt et al. 2018

> The replacement of conventional lighting with energy-saving light emitting diodes (LED) is a worldwide trend, yet its consequences for animals and ecosystems are poorly understood. Strictly nocturnal animals such as bats are particularly sensitive to artificial light at night (ALAN). Past studies have shown that bats, in general, respond to ALAN according to the emitted light color and that migratory bats, in particular, exhibit phototaxis in response to green light.

Effects of hydrokinetic turbine sound on the behavior of four species of fish within an experimental mesocosm – Schramm et al. 2017

> The development of hydrokinetic energy technologies (e.g., tidal turbines) has raised concern over the potential impacts of underwater sound produced by hydrokinetic turbines on fish species likely to encounter these turbines. To assess the potential for behavioral impacts, we exposed four species of fish to varying intensities of recorded hydrokinetic turbine sound in a semi-natural environment.

The influence of regulatory framework on environmental impact assessment in the development of offshore wind farms in Spain: Issues, challenges and solutions – Salvador et al. 2018

> It is clear that renewable energies, and particularly offshore wind power, constitute an opportunity to meet international and national commitments and targets for the reduction of greenhouse gas emissions as established by the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement, and they therefore constitute an element of the approach necessary to address global warming in general.

The Motus Wildlife Tracking System: a collaborative research network to enhance the understanding of wildlife movement – Taylor et al. 2017

> We describe a new collaborative network, the Motus Wildlife Tracking System, which is an international network of researchers using coordinated automated radio-telemetry arrays to study movements of small flying organisms including birds, bats, and insects, at local, regional, and hemispheric scales. Radio-telemetry has been a cornerstone of tracking studies for over 50 years, and because of current limitations of geographic positioning systems (GPS) and satellite transmitters, has remained the primary means to track movements of small animals with high temporal and spatial precision.

News and Current Events

Marine Renewable Energy

WESE Project Addresses Wave Energy Environmental Concerns – Marine Energy Biz

> Wave Energy in Southern Europe (WESE) project, aimed to improve the current knowledge on the potential environmental effects of wave energy, has been officially launched along with a corresponding website. The project runs from November 2018 until October 2021, WESE said in the latest press statement.

Magallanes install ATIR tidal turbine at EMEC – EMEC

> The European Marine Energy Centre (EMEC) is delighted to welcome Spanish tidal energy developer Magallanes Renovables to their tidal test site at the Fall of Warness in Orkney, Scotland. The successful installation of their second generation (2G) 2MW tidal platform 'ATIR' took place on 16th February and marks a major milestone in the Ocean_2G project, which aims to test, validate and pre-certify Magallanes' device.

Atlantis: MeyGen Reaches 12 GWh Milestone – Marine Energy Biz

> SIMEC Atlantis Energy, a sustainable energy generation company, has said that its tidal energy project MeyGen has exported 12GWh of power to the grid. According to the company's social media update, this represent a new record of exported tidal energy to the grid, surpassing SeaGen tidal stream generator.

Three Wave Energy Developers Ready to Test Devices in Hawaii – Engineering News Record

> Fabrication of a giant barge-like wave energy device is underway in Portland, Ore., in preparation for testing in Hawaii this summer. The hull for the 125-ft-long by 59-ft-wide, 86-ton OE Buoy—with potential rated capacity of more than 1 MW in electrical power production—is complete. The buoy will be towed from Portland to Hawaii for 12 months of testing beginning this summer at the U.S. Navy Wave Energy Test Site

Crown Estate Scotland extends EMEC tidal lease – ReNews

> The European Marine Energy Centre has secured a lease extension on its primary tidal energy test site until 2040 from Crown Estate Scotland. The grid-connected Fall of Warness site has eight test berths ranging from 12-50 metres in depth. Since the site was opened in 2007, 10 tidal energy companies have tested 19 prototypes at the Fall of Warness location.

Wind Energy

Orsted's huge offshore wind farm in UK produces first power – CNBC

> The first turbine at Hornsea One, an offshore wind farm situated 120 kilometers off the coast of Yorkshire, has started to generate power. In an announcement Friday, Danish renewable energy firm Orsted said that, when fully operational, the Hornsea One offshore

wind farm would be almost double the size of Walney Extension, which is currently the world's biggest. The Hornsea One site will be made up of 174, 7-megawatt turbines from Siemens Gamesa.

Asia-Pacific adds 24.9 GW of onshore wind in 2018 – Renewables Now

The Asia-Pacific region brought online 24.9 GW of onshore wind capacity in 2018, bringing the region's cumulative installations to 256 GW, the Global Wind Energy Council (GWEC) said today. Fresh onshore wind additions last year rose by 4.2% in annual terms, according to preliminary figures. The top three countries that led the growth were China, with 21.2 GW of deployments, India with 2.2 GW and Australia with 0.55 GW.

Alphabet's Wind Energy Kites to Fly Offshore – IEEE Spectrum

The California startup recently spun out of X—Alphabet's experimental technology lab, or "moon shot factory"—to become an independent business within Google's parent company. Makani is also partnering with Royal Dutch Shell in a bid to launch the startup's high-flying kites where they haven't flown before: offshore.

Maine's New Governor Ends Wind Moratorium – North American Windpower

Governor Janet Mills, D-Maine, has signed an executive order to end the state's moratorium on wind turbine permits. According to Mills, who came into power in January, the new order clarifies that state agencies with the legal authority to issue permits can, once again, do their work with Maine's local communities and stakeholders to determine which projects should go forward.

Total moves into offshore wind with joint bid for Dunkirk project – Reuters

French energy major Total is partnering with Denmark's Orsted and renewable energy producer Elicio to submit a joint bid for the 600 megawatt capacity Dunkirk offshore wind project in France, the company said on Monday. The bid is the oil and gas major's first serious foray into offshore wind in decades as it expands its presence in the renewable energy value chain.

AI detects potentially damaging ice on wind turbines – Venture Beat

Ice is the enemy of turbines everywhere. Some wind farms report energy production losses of up to 20 percent due to icing, according to Canadian wind-industry consultancy firm TechnoCentre Éolien (TCE). There's a clear and present use case, then, for an AI system that detects wind turbine icing.

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 and wishes to make you aware of the following opportunities:

- Ocean Energy ERA-NET Cofund has launched a second joint call for ocean energy research and development projects with a focus on pushing technologies from Technology Readiness Level (TRL) 3-6 through to TRL 4-8. Deadline to apply is 1 March 2019.
- The Scottish Government has relaunched the £10 million Saltire Tidal Energy Challenge Fund to help commercial deployment of tidal projects. Applications close 6 December 2019.
- ORJIP Ocean Energy is leading a study to support proportionate, consistent and integrated decision making for marine energy consenting in Wales. If you would like to respond to the Call for Evidence, please send a message to ORJIP@Aquatera.co.uk.