TETHYS BLAST

14 June 2019

The bi-weekly *Tethys* Blast highlights 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.

Request for Information

The Department of Energy's (DOE) Water Power Technologies Office is requesting your input on the use of the Pacific Northwest National Laboratory's (PNNL) Marine Sciences Laboratory (MSL) facilities in Sequim, Washington, for research, technology development, and testing related to all aspects of renewable energy, maritime markets, and energy storage. This information will help DOE and PNNL prioritize resources and investments. Please respond to this Request for Information via email to wptorfi@ee.doe.gov by 8 August 2019.

Job Opportunities

Bat Conservation International is seeking a Bats & Wind Energy Network Coordinator and a Bats & Wind Energy Research Coordinator. See linked position descriptions for details.

Upcoming Conferences

WindEurope Offshore 2019 will be held in Copenhagen, Denmark on 26-28 November 2019. The deadline for abstract submission is 15 June 2019.

OCEANS 2019 will be held in Marseille, France on 17-20 June 2019 and OCEANS 2019 Seattle will be held in Seattle, Washington on 27-31 October 2019.

The 8th International Conference & Exhibition on Clean Energy will be held in Montreal, Canada on 12-14 August 2019. The deadline for abstract submission and early bird registration is 30 June 2019.

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:

Acoustic characterization of sensors used for marine environmental monitoring – Cotter et al. 2019

> Active acoustic sensors are widely used in oceanographic and environmental studies. Although many have nominal operating frequencies above the range of marine mammal hearing, they can produce out-of-band sound that may be audible to marine mammals. Acoustic emissions from four active acoustic transducers were characterized and compared to marine mammal hearing thresholds. All four transducers had nominal operating frequencies above the reported upper limit of marine mammal hearing, but produced measurable sound below 160 kHz.

Minimizing wildlife impacts for offshore wind energy development: Winning tradeoffs for seabirds in space and cetaceans in time – Best and Halpin 2019

> The varying nature of impacts in space and time leads us to conclude that sites should be selected in space to minimize long-term operational impacts on seabirds, and timing of surveying and construction activities to be conducted in times of the year when sensitive migratory marine mammals are least present. We developed a novel spatiotemporal decision support framework that interactively visualizes tradeoffs between offshore wind energy development industry profits and wildlife sensitivities, in both space and time.

Empirical Determination of Severe Trauma in Seals from Collisions with Tidal Turbine Blade – Onoufriou et al. 2019

> In this study, we estimate the pathological consequences of direct collisions with tidal turbines using seal carcasses and physical models of tidal turbine blades. We quantify severe trauma at a range of impact speeds and to different areas of seal carcasses. A dose–response model was developed with associated uncertainty to determine an impact speed threshold of severe trauma to use in future collision risk models. Results showed that severe trauma was restricted to the thoracic region, with no evidence of injury to the lumbar or cervical spine.

Positive ecological effects of wind farms on vegetation in China's Gobi Desert – Xu et al. 2019

> In this research, a field study was conducted to investigate the effects of wind farms on the individual traits, community structures and ecosystem functions of Gobi Desert ecosystems. The results showed that (1) plant individuals in interfering areas (IAs) were less stressed and in better physiological states than those in non-interfering areas (NIAs); (2) for community structures, IA plants tended to be shorter and denser and had a higher

coverage condition than that of NIA plants; and (3) ecosystem functions in IAs were significantly improved due to the existence of shrubs and higher biomass.

Governance challenges of marine renewable energy developments in the U.S. - Creating the enabling conditions for successful project development – Lange et al. 2018

Technical, economic and engineering challenges co-exist with governance challenges in the development of large-scale marine renewable energy projects. This paper addresses the question, if the prerequisites for sustainable project development are evident in selected case studies. It also asks what lessons can be learned from current practice in the context of energy governance at the local level. The study builds on a multiple stakeholder approach involving interviews and group discussions with key individuals from industry, government and civil society in emerging pilot programmes along the East Coast of the United States (U.S.).

Comprehensive life cycle assessment of large wind turbines in the US – Alsaleh and Sattler 2019

The goal of this study was to conduct a comprehensive life cycle assessment (LCA) for large onshore wind turbines in the US, including all phases of the turbine's life cycle separately (materials acquisition, manufacturing, transportation, installation, operation and maintenance, and end of life) and multiple impact categories (environmental, human health, resource consumption). The study was conducted for 200 Gamesa 2-MW wind turbines located near Abilene, Texas.

News and Current Events

Marine Renewable Energy

Welsh Government awards €14.9 million of EU funding to leading marine energy developer Minesto – Minesto

The Welsh Government has announced their continued support to leading marine energy developer Minesto following the award of €14.9 million of European Union (EU) funding for the next phase of Minesto's tidal energy scheme in Wales. Having previously received substantial support from the European Regional Development Fund through the Welsh European Funding Office (€13m) and InnoEnergy (€5.5m), Minesto and the Deep Green technology is the EU's largest investment in marine energy to date.

Results of First Phase PLAT-I Testing at Grand Passage – Sustainable Marine Energy

Sustainable Marine Energy has recently concluded the first phase of testing of their 280kW floating, instream, tidal energy platform in Grand Passage (between Long Island and Brier Island, in Digby County, Nova Scotia). The platform was installed in September 2018. The most significant outcome is the results from their environmental

monitoring program – they did not observe, or see any evidence of, any marine animals passing our turbines, except for some jellyfish.

Wave Swell Energy Eyes 2020 Deployment – Marine Energy

Australian company Wave Swell Energy has developed technology which converts energy in ocean waves into clean, emissions-free electricity. The company is currently developing a 200kW energy project, intended to be installed in the ocean off the east coast of King Island, Tasmania. The project's aim is to demonstrate the ability of the technology to produce electrical energy at a cost comparable to new coal-fired power plants, when installed at large-scale.

Big Moon rises on Anglesey tidal energy project – Morlais

A Canadian firm is the latest to come on board with Anglesey's tidal energy project, as directors sign a brand-new agreement during the Egni 2019 marine energy conference at M-SParc in Gaerwen this week. The deal comes following several visits by Nova Scotia based, Big Moon Power to North Wales and discussions with Morlais, the tidal energy demonstration zone off the west coast of Anglesey. Subject to receiving relevant consents the new agreement will enable Big Moon to deploy their tidal energy technology on a commercial scale at the site.

WESE Project Completes BiMEP and Mutriku Sites Monitoring – Marine Energy

Wave Energy in Southern Europe (WESE) Project, devoted to the collection, processing, analysis and sharing of environmental data around wave energy devices, has recently carried out different monitoring activities around the MARMOK-A-5 device of IDOM-Oceantec and Mutriku Wave Power Plant in the Basque Country. The results and analysis coming from these campaigns are subject of different reports that will be finalized by 2020.

Wind Energy

Norway's Equinor to build world's biggest floating wind farm near Canary Islands – Renew Economy

Norwegian multinational energy company Equinor has received approval to build a 200 MW floating offshore wind farm off the coast of the Canary Islands which would be the world's largest planned floating offshore wind farm. The project, to be built in the Canaries Special Zone, could begin operations as early as 2024 – depending on a smooth bureaucratic and regulatory process. The project is expected to create between 120 and 200 jobs during the 20-year lifespan of the project.

Scottish Power to install biggest battery in Europe at windfarm – Renewable Energy World

The Scottish government has given utility Scottish Power the go-ahead to install Europe's biggest industrial-scale battery to date to store energy generated at the 539MW Whitelee onshore wind farm in Scotland. The 50MW capacity battery, set to be operational in 2020, will be the size of half a football pitch, and will capture power generated by the facility's 215 turbines. It will be capable of reaching full charge in an hour, says developer Scottish Power.

Offshore O&M spend to hit '€11bn by 2028' – reNEWS

The global offshore wind operation and maintenance (O&M) market is expected to grow by 17% a year to €11bn by 2028, according to new research from Wood Mackenzie Power and Renewables. Wood Mackenzie said Europe would be the largest contributor with €6.7bn in value, while the Asia Pacific region is keeping up the pace in O&M market size and spend.

SeaTwirl receives a €2,48 million grant from the European commission – SeaTwirl

The SeaTwirl S2 project (1MW turbine) has been selected by the EU as a winner in the SME Instrument program after a tough review. The companies, selected after a review by professional assessors and personal interviews by a jury of investors, entrepreneurs and venture capitalists, receive up to €2.5 million to finance innovation activities. The grant will be used for the final phase of the S2 project and primarily for detailed design, project management, marketing and commercialization.

ORE Catapult and Synaptec Battle Offshore Cable Failure Costs – Offshore Wind

Offshore Renewable Energy (ORE) Catapult and Synaptec have partnered in a project aimed at reducing the cost of subsea cable failures and accompanying monitoring systems. The project aims to reduce costs by automating the response to cable faults and developing long-term prognostics capabilities to improve O&M cost through power quality and dynamic line rating data streamed from up to 50 locations per system, Synaptec said.

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 and wishes to make you aware of the following opportunities:

- The Clean Energy for EU Islands Secretariat has invited EU islands to apply for assistance to advance the development of individual renewable energy and energy efficiency projects in their local community. Applications close 30 June 2019.

- The €13 million OceanDEMO project has announced the 1st call for applications. The project aims to accelerate ocean energy's transition from single prototype to multi-device farms by providing access to world-leading test centres. Applications close 1 July 2019.
- The Katapult Ocean Accelerator Programme has launched its 2nd call for applications from start-ups looking to provide solutions to ocean challenges. The 3-month programme will focus on growth, investor readiness, leadership development, exponential tech and introductions to the Norwegian and global ocean tech ecosystem. Applications close 31 August 2019.