TETHYS BLAST

17 May 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.

Upcoming Funding Opportunities

The Wind Wildlife Research Fund released a request for proposals in March for research projects beginning in 2020 that seek to advance understanding of the impacts of wind energy on wildlife and to develop solutions to avoid, minimize, or offset those impacts. Proposals are due 20 May 2019.

On behalf of the National Offshore Wind Research and Development Consortium, the New York State Energy Research and Development Authority (NYSERDA) has released a Program Opportunity Notice (solicitation) which seeks to develop and demonstrate technology innovations that will reduce the levelized cost of electricity (LCOE) for offshore wind in the United States. Proposals are due 31 December 2019 or until all funds are committed.

Upcoming Conferences

The 6th PRIMaRE Conference will be held in Cardiff, Wales on 3-4 July 2019. The abstract submission deadline has been extended to 17 May 2019.

The American Wind Energy Association's (AWEA) WINDPOWER 2019 will be held in Houston, Texas on 20-23 May 2019. Registration rates increase 20 May 2019.

OCEANS 2019 Seattle will be held in Seattle, Washington on 27-31 October 2019. Abstracts are due 31 May 2019 and registration will open 17 June 2019.

The EU Sustainable Energy Week (EUSEW) Policy Conference will be held in Brussels, Belgium on 18-20 June 2019. Registration is free for all participants and open now.

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:

Assessing the Cumulative Adverse Effects of Offshore Wind Energy Development on Seabird Foraging Guilds Along the East Coast of the United States – Goodale et al. 2019

> Offshore wind farms are rapidly being permitted along the East Coast of the U.S., and with subsequent development could cumulatively affect seabird populations. Assessments of cumulative effects must first calculate the cumulative exposure of seabirds to areas suitable for offshore wind farms and then estimate how exposure will affect populations. This paper addresses this first need, and quantifies how three different wind farm siting scenarios could cumulatively expose seven seabird foraging guilds.

The trade-off between tidal-turbine array yield and environmental impact: A habitat suitability modelling approach – du Feu et al. 2019

> Here, methods are proposed to quantify ecological impact and to incorporate its minimisation into the tidal turbine array design process. Four tidal developments in the Pentland Firth are modelled with the array optimisation tool OpenTidalFarm, that designs arrays to generate the maximum possible profit. Maximum entropy modelling is used to create habitat suitability maps for species that respond to changes in bed-shear stress.

A Pioneer in Transition: Horizon Scanning of Emerging Issues in Germany's Sustainable Wind Energy Development – Köppel et al. 2019

> The horizon scan aimed at identifying the emerging need for collaborative action, based on the viewpoints of various stakeholders and the state of research in wildlife conservation and wind energy development. We applied a multi-faceted, inclusive process, building on ca. 50 explorative expert interviews, previous research, and a literature review. The process yielded 18 emerging issues at the nexus of wind and wildlife, planning and technologies, and social aspects to cope with the challenges ahead.

Lifecycle Environmental Impact Assessment of an Overtopping Wave Energy Converter Embedded in Breakwater Systems – Patrizi et al. 2019

> This study focuses on the Overtopping BReakwater for Energy Conversion system that has been implemented and tested in the harbor of Naples. The Life Cycle Assessment of a single replicable module of OBREC has been performed for analyzing potential environmental impacts, in terms of Greenhouse Gas Emissions, considering construction, installation, and the operational phases. The CIE has been then assessed to demonstrate the profitability and the opportunity to foster innovation in the field of blue energy.

Justice, social exclusion and indigenous opposition: A case study of wind energy development on the Isthmus of Tehuantepec, Mexico - Zárate-Toledo et al. 2019

> The Isthmus of Tehuantepec is one of the windiest places on Earth and the scene of a large-scale wind energy development plan conceived by the Mexican government in conjunction with multinational companies. We analyze the national wind energy development policy, and the negotiation processes, alliances and popular local indigenous resistance created by the Isthmus of Tehuantepec Wind Energy Megaproject.

Over or under? Autonomous sensor fish reveals why overshot weirs may be safer than undershot weirs for fish passage – Pflugrath et al. 2019

> Many riverine fish species disperse downstream as eggs, juveniles, or adults, which can expose them to injury and death at hydraulic structures. Low-head weirs are one example of a structure that can kill fish, and this impact has been shown to be substantially higher for undershot weirs when compared to overshot weirs. In this study, autonomous sensor devices were released at an overshot and undershot weir under similar discharges to assess what stressors maybe contributing to differences in the survival rates of fish.

News and Current Events

Marine Renewable Energy

Partnership Agreed with General Electric to Develop the World's Largest Tidal Stream Turbine – Simen Atlantis Energy

> Atlantis and GE have been working in partnership since September 2018 on the development and performance validation of Atlantis' AR2000 tidal generation system, which is expected to be the world's largest and most powerful single axis turbine available. This record-breaking system is expected to be deployed on Atlantis' iconic MeyGen Project in Scotland and will also be available for sale to commercial developers.

Leask Marine Launches First of a Kind Submersible Drilling Rig – Leask Marine

> Orkney based marine contractors, Leask Marine Ltd has developed an innovative Drilling Rig, to provide a cost-effective solution for the marine renewables industry. The company has built the world's first submersible drilling rig of its kind, investing £1.6 million in its R&D project, to develop this new equipment and create further specialist, industry jobs. The project has enabled the company to design, manufacture, and test the viability of a submersible drilling rig, suitable for highly turbulent marine conditions.

Nova wins €5 Million European Tidal Energy Project (ELEMENT) to slash the cost of tidal energy – Nova Innovation

Scotland-based tidal energy leader Nova Innovation is leading a consortium that has won a major new European project, ELEMENT, that will use Artificial Intelligence to improve tidal turbine performance and accelerate commercialisation of tidal energy. The control technology will be demonstrated on a floating tidal device in the Étel estuary in Brittany and on a seabed-mounted Nova M100 turbine in the Shetland Tidal Array.

OPT Achieves Power Generation Milestone in Adriatic Sea – Marine Energy

Ocean Power Technologies' PB3 PowerBuoy deployed in the Adriatic Sea has produced more than 1 MWh cumulative energy to date. The PowerBuoy has been deployed for six months, operating continuously and error-free while being controlled remotely from OPT's NJ facility. OPT's PowerBuoy is part of Eni's MaREnergy project to demonstrate the suitability of wave-energy renewable technologies in the oil & gas industry.

UN founds international network to accelerate startups for ocean sustainability – EurOcean

The United Nations Global Compact, through its oceans platform, has just created an international acceleration network to promote the development of technology solutions that foster the sustainability of the oceans. This initiative, which will be coordinated by the UNGC, will develop its work during the next 24 months, with the presentation of the first results expected for June 2020, during the UN Oceans Conference in Lisbon.

Wind Energy

Offshore Wind Will Need Bigger Boats. Much Bigger Boats – Bloomberg

Only about a dozen ships in the world can install a wind turbine. While wind turbine manufacturers led by MHI Vestas Offshore Wind A/S and General Electric Co. are expanding the size of their machines quickly, the small cadre of mainly closely-held specialist shipowners that does the installations is hesitant to build more ships before they know how big the vessels need to be. That indicates a looming ship shortage in the next decade, threatening the outlook for a seven-fold jump in offshore wind capacity by 2030.

New Wind Turbine Foundation Wins Prestigious Construction Industry Award – Renewable Energy Magazine

RUTE Foundation Systems has been awarded the 2019 Merit Award from the Post-Tensioning Institute (PTI), based on the first installation of its concrete-saving, CO2-reducing foundation system for wind turbine towers. The industry-first modular wind turbine tower base, developed by RUTE with early support from VertueLab, cuts the amount of concrete needed by 75 percent over the life cycle of a wind farm.

Acciona wind tower takes in Spanish sun – reNEWS

Acciona has greened wind energy production further by cladding a turbine tower at its Brena wind farm in Spain with flexible photovoltaic modules. The solar electricity generated from the 120 panels will cover the consumption of the turbine's auxiliary systems. The project will enable the field testing of an alternative type of flexible PV cell, based on organic chemistry, rather than silicon or thin-film technology.

Block Island Tourism Numbers Up Since Offshore Wind Farm Was Built – WindPower

Researchers at the University of Rhode Island (URI) who analyzed AirBnB rental data before and after construction of the Block Island Wind Farm have found that, contrary to some concerns, the turbines have actually increased tourism on the island. The researchers collected lodging data from AirBnB to examine trends in monthly revenues, occupancy rates and reservations from roughly two years before construction of the turbines to one year after construction was completed.

Department of Energy Selects Four Projects to Develop High-Efficiency, Lightweight Wind Turbine Generators for Tall Wind and Offshore Applications – U.S. Department of Energy

The U.S. Department of Energy selected four projects totaling up to $8 million to develop next-generation wind turbine drivetrain technologies that will facilitate the continued growth of wind turbines for both land-based tall wind and offshore applications. Each of the selected projects will receive up to $400,000 to design a wind turbine generator that can be scaled up to at least 10 megawatts to capitalize on the trend of larger, more powerful wind turbines, especially for offshore applications.

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 €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 €2.5 million Blue-GIFT (Blue Growth and Innovation Fast Tracked) project consortium has announced the 1st call for applications for access to test sites in the Atlantic Area region to perform tests and validation of marine renewable energy technologies. Applications close 6 September 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.