TETHYS BLAST

3 May 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.

New Short Science Summary

The Social and Economic Data for Marine Renewable Energy Development Short Science Summary is now available on *Tethys*! Check it out here.

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.

The New York State Energy Research and Development Authority (NYSERDA) has released an Environmental and Fisheries Research for Offshore Wind Energy Development Program Opportunity Notice (solicitation) making $2M available to support independent research, due 14 May 2019.

Upcoming Conferences

The 3rd World Congress and Exhibition on Wind & Renewable Energy (Wind Energy 2019) will be held in Barcelona, Spain on 24-25 June 2019. Discounted registration is available until 13 May 2019 and special discounts for group registration are available until 6 May 2019.

The 13th European Wave and Tidal Energy Conference (EWTEC) will be held in Napoli, Italy on 1-6 September 2019. The early bird registration deadline has been extended to 14 May 2019.

The National Hydropower Association (NHA) will host the next International Conference on Ocean Energy (ICOE) in Washington, D.C. on 19-21 May 2020.

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:

Biases in the Literature on Direct Wildlife Mortality from Energy Development – Loss et al. 2019

> Direct wildlife mortality from energy development receives substantial public and scientific attention, but it is unclear whether rigorous comparisons of mortality among energy sources are possible. We compared availability of mortality studies among energy sources, wildlife groups, and regions, and assessed comparability of mortality indicators measured. Whereas wind and hydropower have received substantial mortality research exceeding their proportional contributions to global energy production, coal, oil and gas, and bioenergy have received fewer studies and are underrepresented relative to their contributions.

An overview of fish bioacoustics and the impacts of anthropogenic sounds on fishes – Popper and Hawkins 2019

> Fishes use a variety of sensory systems to learn about their environments and to communicate. Of the various senses, hearing plays a particularly important role for fishes in providing information, often from great distances, from all around these animals. Thus, anything that interferes with the ability of a fish to detect and respond to biologically relevant sounds can decrease survival and fitness of individuals and populations. The intent of this paper is to review the potential effects of anthropogenic sounds upon fishes, the potential consequences for populations and ecosystems and the need to develop sound exposure criteria and relevant regulations.

Is wind energy increasing the impact of socio-ecological change on Mediterranean mountain ecosystems? Insights from a modelling study relating wind power boost options with a declining species – Ferreira et al. 2019

> In Mediterranean Europe, the skylark (Alauda arvensis) is a declining passerine that breeds in mountain habitats vulnerable to the abandonment of traditional management practices and climate change. We have created a spatially explicit agent-based model (ABM) in order to replicate the selection of territories, evaluating the effect of wind farms on the mortality rate of breeding males. We were especially interested in assessing the mortality rates related with the interplay between habitat loss due to socio-ecological change and increasing wind power using alternative strategies: adding wind turbines or substituting existing wind turbines by more powerful ones, i.e. repowering.

Wave energy to power a desalination plant in the north of Gran Canaria Island: Wave resource, socioeconomic and environmental assessment – Prieto et al. 2019

> A common major problem in mid-latitude small and remote islands is the low annual precipitation rate and the associated freshwater scarcity, leading to the installation of desalination plants powered by oil. In this context, the assessment of wave energy potential along with socioeconomic and environmental factors in a selected area at the north side of Gran Canaria Island shows that wave power availability is adequate for its exploitation and there are no sources of potential conflicts that prevent the installation of wave energy converters.

Stakeholder Perspectives on the Value of Marine Spatial Planning Towards Advancing Offshore Wind in the U.S. – Ryan et al. 2019

> The U.S. contributes only 0.2% of the 18,814 MW of global installed offshore wind capacity. Lack of development has been attributed in part to a cumbersome regulatory process that includes the evaluation of environmental impacts. We conducted semi-structured interviews with key informants to understand (1) whether a lack of biological data impedes offshore wind environmental assessments, (2) whether MSP could mitigate these impediments, and (3) whether MSP could advance offshore wind development in the U.S. in other ways.

Modelling impacts of tidal stream turbines on surface waves – Li et al. 2019

> A high resolution Computational Flow Dynamics (CFD) numerical model is built based on a laboratory experiment in this research to study impacts of tidal turbines on surface wave dynamics. A reduction of ~3% in wave height is observed under the influence of a standalone turbine located 0.4 m from the free surface. The artificial wave energy dissipation routine 'OBSTACLE' within FVCOM is shown to effectively capture the correct level of wave height reduction, reproducing the CFD results with significantly less computational effort.

News and Current Events

Marine Renewable Energy

Innovative Ocean Thermal Energy Project Enters New Phase – Renewable Energy Magazine

> Last September, Global OTEC Resources received a £140,000 grant from Marine-i which enabled the company to establish its operation in Cornwall. Their plan is to use ocean thermal energy conversion (OTEC) technology to provide green energy to 'off-grid' islands across the tropics. This week, Global OTEC Resources announced that it has successfully completed the initial designs and feasibility studies and is progressing to detailed design of the key components, all with the aid of a further £80,000 grant.

Eni to Build Industrial-Scale Offshore Wave Power Plants – The Maritime Executive

> The CEOs of Eni, Fincantieri, Cassa depositi e prestiti (CDP) and Terna have signed an agreement to develop and build wave power stations on an industrial scale. The agreement seeks to combine the expertise of the collective companies to transform the Inertial Sea Wave Energy Converter (ISWEC) pilot project into a project on an industrial scale. Eni installed the project at its Ravenna offshore site, and it became operational in March.

Marine Mammal Monitoring Equipment Testing Conducted – Marine Energy

> The Balmoral Subsea Test Centre in Aberdeen has carried out hydrostatic tests on equipment that will be used to monitor the interaction between tidal turbines and marine mammals in the Pentland Firth. The linear actuators that were tested form part of a marine mammal monitoring station anchored to the sea floor. Utilizing both passive- and active-acoustic tracking techniques, the station will collect data on the underwater movements of marine mammals around operating tidal turbines.

Enzen selects Bombora to supply Lanzarote Wave Energy Farm off Northern Africa – HydroWorld

> Enzen has chosen Bombora Wave Power to supply a grid-connected wave farm to be located in the Atlantic Ocean on the north side of Lanzarote, the fourth largest of the Spanish Canary Islands, off the coast of northern Africa. Enzen has identified that Lanzarote has a large and consistent wave energy resource along its northern coastline, according to a press release. Bombora's fully submerged mWave wave energy converters will be installed to deliver clean renewable energy.

Scotland generates most tidal stream energy in the world – New Civil Engineer

> Research by Ocean Energy Europe has revealed that Europe is still the hot-spot for tidal stream energy installations, with Scotland leading the pack. Since 2010 Europe has deployed 26MW of tidal stream energy generators and 11.3MW of wave energy generators in its waters. Scotland accounts for over a third of all of Europe's operational tidal capacity. Tidal stream power installations outside Europe are also on the rise, with capacity jumping from zero in 2015 to a total of 6.7 MW by the end of 2018.

Wind Energy

Van Oord team piles into noise reduction – reNEWS

> Van Oord and AdBm Technologies, with support from TNO, have demonstrated a new system for reducing underwater noise during pile driving work for offshore wind turbine foundations. The AdBm Noise Mitigation System (NMS) uses acoustic resonators designed and produced by AdBm Technologies to reduce the noise from pile driving. This results in less disturbance for marine mammals near construction sites.

Former Coal Powerplant Brayton Point to Make Way for Renewable Energy – WCAI

The Brayton Point powerplant closed in 2017, and on Saturday, April 27, the plant's landmark feature, its twin cooling towers, are scheduled to be demolished by implosion. Community Development Company Inc., is now in charge of redeveloping the site for its second life, as an area where offshore wind turbines can be assembled before they're shipped out to sea.

Whale Detection Tech Debuts on Block Island Windfarm – Offshore WIND

The University of Rhode Island (URI) has developed and deployed an acoustic device to detect whales near the Block Island offshore wind farm. MARIMBA (Marine Mammal Monitoring at Block Island Using Acoustics) was developed by six ocean engineering students who deployed it in close vicinity of the 30MW offshore wind project. After spending the winter engineering all of the elements of the device and the communications platform, two units were deployed for two weeks in late March and early April.

E.ON and Kyuden Mirai Energy sign cooperation agreement for Offshore Wind projects in Japan – E.ON

The cooperation is focused on fixed bottom projects and starts with a study to jointly select a project for development, construction and operations in the Kyushu area, the southernmost island of Japan. The companies may consider expanding the partnership to other regions in Japan. The cooperation follows E.ON’s decision to enter the Japanese wind market and the company’s recent opening of a Tokyo office.

DNV GL launches digital platform for renewable PPAs – Renewable Energy World

Energy advisory and certification body DNV GL has launched a new digital platform for renewable energy power purchase agreements. Instatrust is a global digital marketplace designed to be a one-stop-shop to connect corporations committed to buying clean energy with suppliers of wind and solar energy. On the web-based platform, recommended best practices will be screened and assets compared for a more transparent global renewable power purchase market.

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 €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.