TETHYS BLAST

22 March 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

WREN is hosting a public webinar on 5 April 2019 at 15:00 UTC about multiple uses for offshore space: incorporating wind energy development. Login instructions are available on Tethys.

Upcoming Conferences

Waterpower Week will be held in Washington DC on 1-3 April 2019, hosted by the National Hydropower Association. Separate tracks will be held to address hydropower and marine energy, and a poster presentation hosted by the Marine Energy Technology Symposium (METS). You can find more information and register here.

The 5th Conference on Wind Energy and Wildlife impacts (CWW2019) will be held in Stirling, Scotland, 27-30 August 2019. Early-bird registration rates are available until April 2019. Abstracts are due 10 April.

Webinar Recording Available

OES-Environmental (formerly known as Annex IV) hosted a webinar on 1 March 2019 about the BioFree (Biofouling in Renewable Energy Environments) project. A recording of the presentation is now available on Tethys.

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:

Wind turbines cause functional habitat loss for migratory soaring birds – Marques et al. 2019

> Wind energy production has expanded to meet climate change mitigation goals, but negative impacts of wind turbines have been reported on wildlife. Soaring birds are among the most affected groups with alarming fatality rates by collision with wind turbines and an escalating occupation of their migratory corridors. These birds have been described as changing their flight trajectories to avoid wind turbines, but this behaviour may lead to functional habitat loss, as suitable soaring areas in the proximity of wind turbines will likely be underused.

An agent-based model to predict fish collisions with tidal stream turbines – Rossington and Benson 2019

> Interest in marine tidal turbines, particularly in coastal waters, raises concerns about collisions between marine wildlife and underwater turbine blades. Research into collision rates is limited, yet predicting the probability of collisions with fish and marine mammals is necessary in order to evaluate any possible consequences for their populations. Existing collision risk models are based on analytical solutions which assume simplistic non-behavioural traits.

Evaluating the environmental impacts of recycling wind turbines – Jensen 2018

> Wind power is one of the fastest growing renewable energy sources. The wind turbines have an expected design lifetime in the range of 20 to 25 years after which decommissioning is expected. The trend in the wind turbine industry is that the turbines increase in size—especially when considering offshore wind turbines in the 7 to 8 MW size range. Life cycle assessments show that the materials used for manufacturing the turbines accounts for 70 to 80% of the environmental impact…

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.

Life Cycle Analysis of Ecological Impacts of an Offshore and a Land-Based Wind Power Plant – Piasecka et al. 2019

> This study deals with the problems connected with the benefits and costs of an offshore wind power plant in terms of ecology. Development prospects of offshore and land-based wind energy production are described. Selected aspects involved in the design, construction, and operation of offshore wind power plant construction and operation are presented. The aim of this study was to analyze and compare the environmental impact of offshore and land-based wind power plants.

Wake effect assessment of a flap type wave energy converter farm under realistic environmental conditions by using a numerical coupling methodology – Tomey-Bozo et al. 2019

> Ocean Energy Europe has estimated that 100 GW of ocean energy capacity (wave and tidal) could be deployed in Europe by 2050. Along with the European targets it is expected that large farms of Wave Energy Converters (WECs) will be installed in the sea and, as part of the consenting process for their installation, it will be necessary to quantify their impact on the local environment. The objective of this study is to improve the assessment of WEC farms impact on the surrounding wave field (wake effect) through the use of a numerical coupling methodology.

News and Current Events

Marine Renewable Energy

Igiugig will test RivGen hydropower through the winter – Alaska Public Media

> In the Yup'ik language, Igiugig's name means "like the throat that swallows water." The Bristol Bay village of about 70 people sits at the head of the mighty Kvichak River. For several years, it has been the test site for a hydropower project. In June, the project got a new lifeline—a $2.3 million award from the U.S. Department of Energy to continue as the test site for the RivGen Power System designed by the Ocean Renewable Power Company of Maine.

EU MegaRoller wave energy project completes model phase – Power Technology

> The European Union (EU) Horizon project MegaRoller has completed an advanced structure interaction Wave Energy Converter (WEC) model as part of a scheme to develop wave energy systems. The MegaRoller project will develop a 1MW power take-off system (PTO) for wave energy converters.

AUSTEn Tidal Energy Research Project Moves Forward – Marine Energy Biz

> AUSTEn has progressed the $5.8 million tidal energy research project and is on track to provide the detailed information needed to stimulate tidal energy investment in Australia. Since the AUSTEn project began the 11-strong team has carried out two field campaigns, mapped 200 sq km of sea floor, and generated numerical models covering scales from the 15km-wide Banks Strait to the whole nation.

Carnegie's Albany Wave Energy Project Funding Falls Through – Marine Energy Biz

> The State Government of Western Australia has elected to terminate Carnegie's Financial Assistance Agreement for the Albany Wave Energy Project, the company said on Tuesday.

Wind Energy

Energy Department Awards $6 Million in Wind Energy Research Projects – Energy.gov

The U.S. Department of Energy (DOE) selected nine projects totaling $6.2 million that will reduce environmental compliance costs and environmental impacts of land-based and offshore wind energy. Funded by the DOE Office of Energy Efficiency and Renewable Energy's Wind Energy Technologies Office, these early-stage research projects are key to development of wind energy as part of DOE's "all-of-the-above" energy strategy.

€31m project secured for floating wind project in North West Europe – EMEC

A €31 million project has been approved for an ambitious four-year floating offshore wind project. Subject to consenting, it is planned that a full-scale floating wind turbine be deployed for testing off the west coast of Ireland at a Sustainable Energy Authority of Ireland (SEAI) test site near Belmullet, Co. Mayo, by 2022. The project is led by the European Marine Energy Centre (EMEC) working in partnership with SEAI, SAIPEM and other organisations in France, Germany, Ireland, the Netherlands, and the UK.

The top 10 countries in the world by wind energy capacity – Power Technology

Wind power has become an important source of energy generation around the world, with global capacity reaching over 600GW in 2018. The construction of new wind power varies year to year and by region; Europe, for example, saw a 32% reduction in wind capacity in 2018 compared with 2017.

UK's first offshore wind farm off the coast at Blyth to be removed – Chronicle Live

Work will start next month to remove a wind farm off the coast of Northumberland that helped kickstart the UK's renewable energy revolution. The wind farm off the coast of Blyth - the first in the UK - was built in 2000 by a consortium made up of E.ON UK Renewables, Shell Renewables, Nuon UK and AMEC Wind.

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 Scottish Government has relaunched the £10 million Saltire Tidal Energy Challenge Fund to help commercial deployment of tidal projects. Applications close 6 December 2019.