



TETHYS BLAST

February 5, 2016

Welcome to the latest bi-weekly Tethys Blast, which will update you with new information available on Tethys, new features of Tethys, and current news articles of international interest on offshore renewable energy. We hope that this becomes a valuable tool to help you stay connected to your colleagues and to introduce you to new research, new contacts, and ongoing milestones in renewable ocean energy development.

Upcoming Conferences

February has two conferences of interest to the marine energy community. The [6th International Conference on Ocean Energy \(ICOE\)](#) will be held in Edinburgh from February 23-25. Meanwhile, [Ocean Sciences 2016](#) will be held in New Orleans from February 21-26.

New Documents on Tethys

New documents have been added to Tethys in the last two weeks. These documents have been hand-selected for their relevance to the environmental effects of marine and wind renewable energy. The listings below are short introductions to several new or popular documents that can be accessed through the accompanying Tethys links:

[**A Scenario-Based Approach to Evaluating Potential Environmental Impacts Following a Tidal Barrage Installation - Kidd et al. 2015**](#)

Total exclusion barrages have a high impact on estuarine systems as they are permanent barriers to tidal flow. The environmental impacts of five putative barrages in various locations within the Tamar River estuary in northern Tasmania, Australia were assessed by considering likely hydrological, morphological and ecological outcomes. We found that all hypothetical barrages would produce downstream silt accretion, some to the point where a major port would become unusable without ongoing dredging.

[**Validation of Finite Element Computations for the Quantitative Prediction of Underwater Noise from Impact Pile Driving - Zampolli et al. 2013**](#)

The acoustic radiation from a pile being driven into the sediment by a sequence of hammer strikes is studied with a linear, axisymmetric, structural acoustic frequency domain finite element model. Each hammer strike results in an impulsive sound that is emitted from the pile and then propagated in the shallow water waveguide. Measurements from accelerometers mounted on the head of a test pile and from hydrophones deployed in the water are used to validate the model results.

[Use of Anthropogenic Sea Floor Structures by Australian Fur Seals: Potential Positive Ecological Impacts of Marine Industrial Development?](#) - Arnould et al. 2015

With the increasing demand for energy resources within ocean systems, there has been an expansion of infrastructure in near-shore benthic environments which function as *de facto* artificial reefs. Little is known of their use by marine mammals. In this study, the influence of anthropogenic sea floor structures (pipelines, cable routes, wells and shipwrecks) on the foraging locations of 36 adult female Australian fur seals (*Arctocephalus pusillus doriferus*) was investigated.

[Disruption to Benthic Habitats by Moorings of Wave Energy Installations: A Modelling Case Study and Implications for Overall Ecosystem Functioning](#) - Krivtsov and Linfoot 2012

This paper presents the research carried out in the marine renewables group of Heriot-Watt University, where the physical models of wave energy converters are first tested in the wave basin, and the results of their behaviour are then compared to the simulations performed using mathematical modelling. An OrcaFlex model is used to assess the scouring effect on bottom sediments and consequent disruption of benthic habitats, and open water tests are being conducted to compare the model performance with the actual observations.

[Ecological Research at the Offshore Windfarm Alpha Ventus: Challenges, Results and Perspectives](#) - Beiersdorf and Radecke 2014

At present and over the next few years, large-scale windfarms are being installed far off the coast of Germany in the North and Baltic Sea, making a major contribution to electricity generation from renewable energy sources. One of the German government's aims is to ensure the environmentally sound and sustainable development of offshore wind energy. Germany's first offshore test site, *alpha ventus*, was therefore accompanied from the construction phase to the first years of operation by an intensive environmental research programme.

Current News

Current news articles of international interest on offshore renewable energy include:

[Sotenäs wave energy plant reaches grid connection milestone](#)

Last December, the innovative Sotenäs Wave Energy Plant was successfully connected to the Swedish National Grid via a subsea cable. So, how exactly does the Sotenäs Plant work? And what plans are there for the future development of the device? The Sotenäs Wave Energy Project is an ambitious initiative consisting of a total of 420 novel energy capturing buoys.

[Giant offshore wind turbine will feature blades longer than two football fields](#)

It's an exciting time in wind energy. We've seen some fascinating new wind technology ideas and countries have been setting new records for wind energy generation. If the new design for a giant offshore wind turbine is any indication, it's only going to get more exciting. A large team of researchers from the University of Virginia, Sandia National Laboratories, University of Illinois, the University of Colorado, the Colorado School of Mines, and the National Renewable Energy Laboratory are working together to build a low-cost **50-MW wind turbine** for use offshore.

[Carnegie completes final milestone for CETO 5 Perth wave energy project](#)

ASX-listed Carnegie Wave Energy has successfully completed 12 months of operations of its ground-breaking CETO 5 Perth Project, thus ticking off the final milestone required for its various government grant funding agreements with both state and federal governments.

[Green light for world's largest offshore wind farm](#)

The world's largest offshore wind farm is to be built off the coast of England, the U.K. government announced on Wednesday. Construction is set to commence after DONG Energy's board of directors confirmed a "positive final investment decision" for the Hornsea One offshore wind farm. The U.K.'s Department of Energy and Climate Change (DECC) said that the wind farm will have a capacity of 1.2 gigawatts and be able to power more than one million homes.