



October 28, 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 wind and marine 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 wind and marine renewable energy development.

## Tethys Story: Making Wind Turbines Safer for Birds

Wind energy developers face challenges to gain public acceptance and necessary permits because of potential impacts on wildlife, especially birds and bats. As a result, developers may be required to monitor projects for the presence and abundance of both diurnal and nocturnal species, collect data on bird or bat collisions with turbines, and implement mitigation strategies that reduce fatalities, despite the fact that parameters for risk have not been adequately defined. During 2016, NREL hosted two wind energy companies—Laufer Wind and RES Americas—to install and monitor avian detection systems at the National Wind Technology Center. For more details: <http://tethys.pnnl.gov/tethys-stories/making-wind-turbines-safer-birds>

## New Documents on Tethys

A total of 22 new documents have been added to Tethys within the last two weeks, hand-selected for their relevance to the environmental effects of wind and marine renewable energy. The listings below are short introductions to several new or popular documents that can be accessed through the accompanying Tethys links:

**[Effects of an Offshore Wind Farm \(OWF\) on the Common Shore Crab \*Carcinus maenas\*: Tagging Pilot Experiments in the Lillgrund Offshore Wind Farm \(Sweden\) - Langhamer et al. 2016](#)**

Worldwide growth of offshore renewable energy production will provide marine organisms with new hard substrate for colonization in terms of artificial reefs. The artificial reef effect is important when planning offshore installations since it can create habitat enhancement. Wind power is the most advanced technology within offshore renewable energy sources and there is an urgent need to study its impacts on the marine environment.

**[Impact of Tidal Level Variations on Wave Energy Absorption at Wave Hub](#) - Castellucci et al. 2016**

The energy absorption of the wave energy converters (WEC) characterized by a limited stroke length — like the point absorbers developed at Uppsala University — depends on the sea level variation at the deployment site. In coastal areas characterized by high tidal ranges, the daily energy production of the generators is not optimal. The study presented in this paper quantifies the effects of the changing sea level at the Wave Hub test site, located at the south-west coast of England.

**[Bird Migration Monitoring in the Saint Nikola Wind Farm, Kaliakra Region, in Autumn 2015, and an Analysis of Potential Impact after Six Years of Operation](#) - Zehindjiev & Whitfield 2016**

This report presents the results of 90 consecutive days of monitoring and mitigation at Saint Nikola Wind Farm (SNWF) in 2015, its 6th operational year. The continued purpose is to investigate the possible impacts on migrating birds. Spatial and temporal dynamics in the numbers of different species passing through the wind farm territory during autumn migration 2015 (15 August to 31 October) are presented.

**[Northeast Ocean Plan \(United States\)](#) - Northeast Regional Planning Body 2016**

Through a historic, unprecedented effort, federal, state, regional, and tribal entities—the caretakers of New England’s marine environment—have joined forces to develop this comprehensive Northeast Ocean Plan. It is a blueprint to protect and manage a public treasure together. This Plan summarizes the ocean planning process and is a guide to informing agency decisions and practices in order to continue making progress toward achieving regional goals for the management of our public ocean resources.

**[Assessing The Benefit Of Noise Reduction Measures During Offshore Wind Farm Construction On Harbour Porpoises](#) - Verfuss et al. 2016**

UK waters are of international importance for the harbour porpoise, holding one of the highest percentages of animals of any European country. As with other cetaceans, these relatively shy animals use sound both to communicate and to find food, and are therefore particularly sensitive to man-made sounds introduced into the marine environment. These include the pulses of noise that spread out from installing pile-driven foundations during offshore wind farm construction.

**[Numerical Modelling of Wave Energy Converters: Environmental Impact Assessment](#) - Kregting & Elsäßer 2016**

The introduction of a large infrastructure of marine energy technology along coastal environments raises some concern on how this will impact on the marine environment. While there are a number of potential environmental impacts of wave energy devices (eg, collision) the focus of this chapter is on the primary ecological processes that may be influenced by changes in the hydrodynamics as a direct result of the installation of wave energy converters (WECs).



### **Funding Calls and Opportunities:**

- [Funding Competition: Manufacturing and Materials Round 2](#)  
registration opens 21 Nov 2016, closes 18 Jan 2017

### **Events:**

ORJIP Ocean Energy, a collaborator with the Annex IV project, will be attending the following events in the coming weeks, please get in touch should you wish to meet up with the team:

- World Ocean Council's Sustainable Ocean Summit in Rotterdam on November 30-December 2 (<http://oceancouncil.org/>).
- Ocean Energy Europe, Brussels, November 8-9 (<http://www.oceanenergy-europe.eu/oe-2016>)

## Current News

Current news articles of international interest on wind and marine renewable energy include:

### **Marine Renewable Energy**

#### **[Neptune jack-up wraps up MeyGen foundations installation](#)**

Atlantis Resources informed that the installation of four Turbine Support Structures (TSS) has been completed at the MeyGen project site in the Pentland Firth, Scotland. All foundations were installed using the Neptune jack-up vessel owned by Geosea. Following the completion of the work the jack-up vessel has been demobilised from the project site.

#### **[Tidal Energy Ltd in Administration](#)**

UK-based Tidal stream technology company, Tidal Energy Ltd, has been placed into Administration. Stephen Wade and David Hill were appointed joint administrators on 17 October 2016 for the firm, which installed Wales' first full-scale tidal stream generating device known as DeltaStream in Ramsey Sound, Pembrokeshire in December 2015.

#### **[Albatern deploys Scottish wave](#)**

Albatern has installed its WaveNet array featuring six 7.5kW Squid devices at a fish farm off Ardnamurchan. The WaveNet array is powering Marine Harvest's fish farm in Mingary Bay. Power generated by the Roslin developer's project, backed by £720,000 funding from Wave Energy Scotland, is transmitted to the fish farm's feed barge via a subsea cable.

## **Wind Energy**

### **Wind turbines moving slower to protect endangered bats**

For many of the nocturnal mammals in Indiana, October means migration season and a potential for mass killing of the animal by wind farms. Between 600,000 and 900,000 bats are killed in the United State each year by wind turbines, according to a study published in the academic journal Bioscience. Many are killed through collisions with whirling blades or through barotraumas, the technical term for internal injuries to an animal when it passes through low-pressure zone created in the wake of a spinning turbine.

### **BOEM and State of California Launch Offshore Renewable Energy Task Force**

The Bureau of Ocean Energy Management (BOEM) and the State of California held the inaugural meeting of the California Intergovernmental Renewable Energy Task Force on 13 October 2016 in Sacramento, California, to begin planning for future renewable wind and wave energy development opportunities in federal offshore waters along the Golden State. California is the 14th U.S. coastal state to form a renewable energy task force to provide critical information to the decision-making process, including how to resolve potential conflicts between development and environmental concerns and other uses.

### **Enterprize Energy launches offshore wind farm in the Taiwan Strait**

Upstream energy firm Enterprize Energy Pte Ltd has launched its first offshore wind farm project in the Taiwan Strait. The Hai Long offshore wind farm project is a joint venture between Enterprize's wholly-owned subsidiary Yushan Energy and Canada-based Northland Power.

### **Researchers develop a self-installing offshore wind turbine**

Though wind power is an important source of sustainable energy, the cost of installing turbines has always been an obstacle to more widespread adoption. This is particularly true for offshore wind farms, which require large, high-tech turbines to be constructed and maintained in oceans and lakes. To address this challenge, an innovative offshore turbine construction process has been developed by the ELISA project.