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The bi-weekly Tethys Blast will update you with new information on Tethys, news article 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.

## Tethys Tools: Tethys Community

Tethys provides environmental information and research to over 45,000 visitors per year. Within these numbers is a diverse community of researchers, developers, regulators, and stakeholders seeking to advance wind and marine renewable energy in an environmentally-responsible manner. One way in which Tethys helps to encourage networking is through the [Tethys Community](#), a list of professional interests and contact information for all registered users who have opted to share their information. There are currently almost 400 people from 37 different countries who have opted in. To protect personal information, the page is hidden by all except registered users who are logged in.

If you would like to access or be included in this community listing, you can register for a user account here: <https://tethys.pnnl.gov/user/register>.

## 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 introductions to new or popular documents are listed below, accessible by the accompanying Tethys links:

[\*\*Hydroacoustic Assessment of Behavioral Responses by Fish Passing Near an Operating Tidal Turbine in the East River, New York - Bevelhimer et al. 2017\*\*](#)

An important environmental issue facing the marine and hydrokinetic energy industry is whether fish that encounter underwater energy devices are likely to be struck and injured by moving components, primarily rotating turbine blades. The automated analysis of nearly 3 weeks of multibeam hydroacoustics data identified about 35,000 tracks of fish passing a tidal turbine in the East River, New York. These tracks included both individual fish and schools during periods with the turbine absent, the turbine present and operating, and the turbine present but not operating.

### **Bubble Curtains Attenuate Noise from Offshore Wind Farm Construction and Reduce Temporary Habitat Loss for Harbour Porpoises - Dähne et al. 2017**

Effects of constructing the DanTysk offshore wind farm (German Bight, 80 turbines, 6 m diameter foundations) were studied by passive acoustic monitoring of pile-driving noise and harbour porpoise *Phocoena phocoena* echolocation. An acoustic deterrence device (seal scarer) was used to protect porpoises from hearing loss and bubble curtains were used to attenuate the pile-driving noise. Porpoise occurrence, quantified by echolocation signals, decreased when the seal scarer was engaged, during pile driving and up to 5 h after pile driving stopped.

### **Comparative Studies Reveal Variability in the use of Tidal Stream Environments by Seabirds - Waggitt et al. 2017**

The global increase in tidal stream turbine installations creates a need to identify and mitigate any impacts on seabird populations. Within Scotland, UK, the vulnerability of black guillemots *Cepphus grylle* and European shags *Phalacrocorax aristotelis* is dependent on their tendency to exploit microhabitats characterised by fast mean horizontal current speeds ( $\geq 2 \text{ ms}^{-1}$ ), and tidal states with maximum current speeds, within tidal stream environments. Identifying consistencies in their relative use of different microhabitats (fast versus slow mean horizontal current speeds) and tidal states (increasing/decreasing versus maximum currents) across these habitats could assist risk assessment and mitigation measures at both a regional and development site level.

### **Genetic Approaches to Understanding the Population-Level Impact of Wind Energy Development on Migratory Bats - Vanhof & Russell 2013**

Documented fatalities of bats at wind turbines have raised serious concerns about the future impacts of increased wind power development on populations of migratory bat species. Yet there is little data on bat population sizes and trends to provide context for understanding the consequences of mortality due to wind power development. Using a large dataset of both nuclear and mitochondrial DNA variation for eastern red bats...

### **SOWFIA Report on the Analysis of the Environmental Impact Assessment Experience for Wave Energy - Conley et al. 2013**

The wave energy industry is an emerging sector and, in comparison to more established industries, is a new user of maritime space. In order to realise the potential for wave energy to contribute towards EU renewable energy goals several technological and non-technological barriers need to be overcome. Many of the non-technological barriers are due to wave energy being at a relatively early stage in its development. Much attention has focused on the potential environmental impacts of wave energy and the burden of responding to this attention represents a significant barrier to the wave energy industry.



[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. ORJIP wishes to make you aware of the following opportunities:

- [The European Commission Joint Research Centre launched a Call for Expressions of Interest for clean energy technology studies.](#)

## News and Current Events

### Marine Renewable Energy

#### [Acadia researchers net federal funding for tidal energy project](#) - Annapolis County Spectator

A tidal energy project based at Acadia University is in line for some major funding from the federal government - \$107,452 to be exact. Lead researcher Dr. Richard Karsten, a mathematics professor working with the Acadia University Tidal Energy Institute, said the incoming grant from the Canada Foundation for Innovation (CFI) will be used to purchase mobile equipment that will help researchers gain a better understanding how tidal energy can be harnessed from various sites within the Bay of Fundy, including the Minas Passage.

#### [MORE redeploys Evopod tidal device](#) - Tidal Energy Today

The Marine Offshore Renewable Energy (MORE) team from the University of Algarve has redeployed the Evopod E1 tidal energy device off Portugal. The redeployment operation was completed in the last week of September at Ria Formosa, a coastal lagoon in the south of Portugal. One week after the deployment, the MORE team informed they conducted a data capturing campaign with load cells that measured drag from E1 while extracting energy.

#### [GKinetic's tidal prototype outputs 'beyond international industry standards'](#) - Maritime Journal

An Irish tidal energy company developing a unique technology for 'off grid' locations around the world is to develop its first commercial device after the successful completion of its prototype testing programme. GKinetic Energy Ltd, based in Newcastle West, Co. Limerick, will develop its first 25kW commercial device after its 8kW unit generated outputs 'above international industry standards', said the company.

## **[Minesto, ITP Energised complete new Cost of Energy analysis](#) - Tidal Energy Today**

As part of its first commercial-scale project, Minesto together with ITP Energised has completed an updated Levelized Cost of Energy (LCOE) analysis of Minesto's marine energy converter based on new knowledge of the system. Projections now show that Minesto's LCOE will already fall to €100/MWh after 100MW cumulative installed capacity in tidal streams. Previous estimates showed a 50% higher cost level.

## **[Carnegie Turns Wave Energy Focus To Albany After Winning Western Australia Grant](#) - Clean Technica**

Perth-based Carnegie Clean Energy is switching the development of its commercial-scale wave energy technology to Albany in the south of Western Australia after winning a tender for a \$15.7 million state-government grant. The grant will mean that Carnegie will install the first of its full-scale 1MW CETO 6 technology in Albany in the summer of 2019/20, the forerunner of a possible 20MW wave energy plant and a bigger 100MW facility to follow.

## **Wind Energy**

### **[IEA lifts five-year renewables forecast after record 2016](#) - Reuters**

The International Energy Agency (IEA) raised its forecasts on Wednesday for renewable energy over the next five years following a record 2016. In its medium-term renewables market report, the IEA expects global renewable electricity capacity to rise by more than 920 gigawatts, or 43 percent, by 2022, due to supportive policies for low-carbon energy and cost reductions for solar PV and wind.

### **[Support boost for island wind energy](#) - BBC News**

Scotland's islands are to be brought into a £557m support scheme for renewable energy. The Western Isles, Orkney and Shetland were previously excluded from bidding in the UK government's Contracts for Difference auctions. Under the scheme power generators compete to secure a minimum price guarantee by offering the lowest price they can. An offshore windfarm in the Moray Firth benefited from a previous auction.

### **[Microsoft just purchased all of GE's newest Irish wind farm capacity for the next 15 years](#) - Tech Crunch**

Microsoft signed an agreement with GE today to purchase every last bit of the wind energy from GE's brand-new 37-megawatt Tullahennel wind farm located in County Kerry, Ireland for the next 15 years. This is a big deal on several levels. First of all, it means Microsoft will be using a clean energy source to power at least some of its cloud data centers in Ireland. That will likely result in a lower energy bill for Microsoft, while reducing the pollution related to running cloud services.

## **GE Kicks Off DRONEWEEK, Featuring Meikle Wind - North American Wind Power**

GE has kicked off its third annual DRONEWEEK, running Oct. 9-13 and featuring aerial footage of different energy infrastructure each day. Each day will feature the following episode: Day one: “The Wind Network,” showcasing Pattern Energy’s Meikle Wind Farm, the largest wind farm in western Canada; Day two: “The Solar Tipping Point,” offering an early look at what will be the world’s biggest solar park, located in Dubai; Day three: “The Alpine Battery,” showing a hydroelectric power plant built inside of a mountain in Linthal, Switzerland...

## **Inox plans 250MW in India - ReNews**

Inox Wind is to build a 250MW wind farm in the Kutch region of Gujarat, following its success earlier this month in India’s latest renewables auction. The company said the project, which will consist of its 2MW turbines, will be executed over the next 12 months. The machines will have 120-metre hub heights and rotor diameters of 113 metres.