TETHYS BLAST

March 3, 2017

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.

ICES Pathways to Influence in Offshore Renewable Energy Survey

The ICES Working Groups on Marine Benthal and Renewable Energy Development and on Marine Renewable Energy Development are seeking to understand what determines which environmental impacts from offshore renewable energy development are perceived as most important. As part of this study, we are carrying out a survey to gather information about the connectedness of groups working in the field of offshore renewable energy, their expertise, and their involvement in bodies such as advisory boards, expert forums, and steering committees. **Input from as many members of the offshore renewable energy sector as possible is important for the success of this international initiative, and it should only take 5-8 minutes.** Take the survey here.

Resources Available on Tethys

You are likely aware of the Tethys Knowledge Base, which houses 3500+ documents on the environmental effects of wind and marine renewable energy. But did you know that Tethys has many other resources that are freely available? Here are a few:

- Events Calendar - A calendar that highlights international events such as webinars, conferences, and abstract deadlines.
- Map Viewer - A subset of all content that can be identified with a geographic location can be viewed spatially on a map.
- Expert Forums - Hosted by Annex IV, prominent topical experts are invited to participate in open discussion on technical subjects, and a recording is made publically available.
- Organizations - A comprehensive list of organizations involved in wind and marine renewable energy research, each listing documents produced by the organization.
- Other Databases - Other databases you might be interested in exploring.

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 Analysis of the Effects of a Tidal Power Turbine on Fishes - Viehman 2016

> Tidal currents help shape coastal marine environments and are essential in life cycles of many fish species. Areas with strong tidal currents are also targeted by humans for energy extraction via tidal energy turbines. The effects of these devices on fishes are difficult to predict because fish behavior within fast tidal currents is largely unstudied. Based at a tidal energy site in Cobscook Bay, Maine, this work sought to describe fish reactions to a tidal energy device, to understand the natural presence of fish at the site, and to provide guidance for future monitoring of tidal energy device effects in these difficult environments.

Fatalities at Wind Turbines may Threaten Population Viability of a Migratory Bat - Frick et al. 2017

> Large numbers of migratory bats are killed every year at wind energy facilities. However, population-level impacts are unknown as we lack basic demographic information about these species. We investigated whether fatalities at wind turbines could impact population viability of migratory bats, focusing on the hoary bat (*Lasiurus cinereus*), the species most frequently killed by turbines in North America. Using expert elicitation and population projection models, we show that mortality from wind turbines may drastically reduce population size and increase the risk of extinction.

Current Ability to Assess Impacts of Electromagnetic Fields Associated with Marine and Hydrokinetic Technologies on Marine Fishes in Hawaii - Claisse et al. 2015

> The goal of this study was to provide a complementary piece to previous reviews by focusing on marine fish species in the Hawaii region. We first developed a list of Hawaii Region Focal Species, which included fishes that are more likely to be sensitive to EMF. We then compiled species-specific information available in the literature on their sensitivity to EMF, as well as life history, movement and habitat use information that could inform an analysis of their likelihood of encountering EMF from subsea cables associated with MHK devices.

Morphological Process of a Restored Estuary Downstream of a Tidal Barrier - Kuang et al. 2017

> Hydrodynamic and morphological processes become more complex with large spatial variations after tidal barrier building and estuary restoration. Using a process-based model, responses in the estuary to a two-phase restoration measure in the Shuanglong Estuary are investigated. Numerical modeling indicates that tide-asymmetry in the barraged estuary is the primary factor that determines responses of morphology.

The Social Acceptance of Wind Energy: Where We Stand and the Path Ahead - Ellis & Ferraro 2016

> Social acceptance is a key challenge for the deployment of wind energy and could limit the overall wind resource we are able to exploit to meet climate change targets. Social acceptance can be influenced by a very wide range of factors, including project characteristics, perception of the distribution of costs and benefits, degree of public participation. Perceived impacts of projects on landscapes, property values, health and biodiversity also influence social acceptance.

Automatic Active Acoustic Target Detection in Turbulent Aquatic Environments - Fraser et al. 2017

> There is no established approach for dealing with the active acoustic detection of biological targets in highly dynamic aquatic environments where intense physical interference means that standard techniques are unsuitable. This is a particular problem in ecologically important environments with emerging industrial significance such as marine energy extraction sites. We developed an automatic processing method which allows effective target detection with high sensitivity throughout variable acoustic conditions.

working to accelerate offshore consenting

ORJIP Ocean Energy (http://www.orjip.org.uk/) 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 also wishes to make you aware of the following opportunities:

- OceaNET is organizing its final Workshop under the theme "Offshore Renewable Energy farm design and O&M" in Bilbao on 27 March 2017 as a side event of the Bilbao Marine Energy Week.
- A new €19 million Horizon 2020 funded OCEANERA-NET COFUND project was just launched to support collaborative research and development projects which demonstrate and validate ocean energy technologies.
- Wave Energy Scotland plans to open a new funding call in two months on accelerating the development of wave energy sector.
- International three-day course on tidal and wave energy, salinity gradient power and ocean thermal energy conversion (OTEC) technologies will be held in the Netherlands this March.

News and Current Events

Marine Renewable Energy

MeyGen's AR1500 powers the grid

The final tidal stream turbine for the MeyGen's first phase, AR1500, has operated at full power and exported the produced electricity to the grid. The deployment of the AR1500 at the MeyGen project site in the Pentland Firth, Scotland, was announced four days ago, and the turbine has already exported power to the grid and operated at full power, the developer behind the project, Atlantis Resources informed.

Nova & ELSA third turbine deployed in Shetland Tidal Array

Scottish tidal energy leader Nova Innovation has successfully deployed a third turbine at the Shetland Tidal Array. The announcement was made at the Renewable UK 13th Annual Wave & Tidal Conference & Exhibition at the QEII Conference Centre, London. Edinburgh-headquartered Nova Innovation installed the first Nova M100 turbine in the Bluemull Sound in March 2016, the second in August 2016, with the third going live in February 2017.

Marine Hub Cornwall Launches at International Wave & Tidal Conference

George Eustice, MP for Camborne, Hayle and Redruth, announced the launch of Marine Hub Cornwall during a keynote address at Renewable UK's Wave & Tidal Conference. Marine Hub Cornwall brings together world class assets with existing and planned programmes of activity to provide a seamless co-ordinated offer to the marine renewable energy sector. A collection of physical sites in the region and a thriving local supply chain provide the best infrastructure for marine renewable technology in the UK.

Schottel, SME take on Asian tides

Schottel Hydro has deployed a floating tidal platform off Singapore, and through the partnership with Sustainable Marine Energy (SME) is looking to add another tidal demo project to the waters of South East Asia. The turbine, attached to a catamaran deployment platform, has been deployed off Sentosa Island in Singapore last week, Schottel Hydro informed.

Tocardo getting InToTidal in Orkney

Tocardo Tidal Power have burst onto the tidal scene in the UK with the InToTidal project kick-off and the arrival of Tocardo's system in Orkney. The system arrived at Hatston Pier in Kirkwall on 13th February 2017 in preparation for it being deployed at the European Marine Energy Centre's (EMEC's) grid-connected tidal test site. It is the start of Tocardo's planned 20-year commercial demonstration project at EMEC's Fall of Warness tidal test site.

Wind Energy

LM Wind Power to Open New Offshore Wind Turbine Blade Factory in France

LM Wind Power will open a new wind turbine blade factory dedicated to the offshore market in Cherbourg, Normandy, France. LM Wind Power explains that the factory will be built on a site developed by Ports Normands Associés (PNA), a port authority that includes the Normandy region and the Manche Department. Ground breaking will begin in March 2017 and production is expected to commence from June 2018. Ultimately, the company expects to employ over 550 people, with as many as 2,000 further indirect jobs resulting in the local area.

Prysmian ahead of schedule in the realisation of the Wikinger offshore wind farm in Germany

Prysmian Group, world leader in the energy and telecom cable systems industry, has successfully completed the laying phase for the Wikinger offshore wind farm ahead of schedule. Termination and testing works are currently in progress. "This milestone, which is quite uncommon in the offshore wind market, highlights the Group's capabilities in managing turnkey inter-array contracts and re-affirms the strong focus Prysmian has in the offshore wind market," stated Massimo Battaini SVP Energy Projects,

Denmark runs entirely on wind energy for a day

Denmark's wind turbines produced enough electricity to power the entire country last month. The Scandinavian nation generated 97 gigawatt-hours (GWh) on 22 February, thanks to particularly windy weather, which is enough to power 10 million average EU households for the day.

Regulators updated on 1st US offshore wind farm operations

A turbine isn't spinning at the nation's first offshore wind farm, but repairs are expected to be complete soon. Deepwater Wind, which owns the five-turbine farm off Block Island, gave an update Tuesday night on the wind farm's initial operations to regulators from Rhode Island's Coastal Resources Management Council. There was an issue with a cable connection on the turbine, but it should be back up within days, said Paul Murphy, the company's vice president for operations and engineering.

Siemens partners with US startup to deploy drones for offshore wind turbine inspections

German wind turbine manufacturer Siemens has joined hands with SkySpecs, a Michigan, US-based start-up to deploy automated drone technology for inspection of offshore wind turbines. The goal of the collaboration is to develop a push-button inspection system which is claimed to be more fast, efficient and repeatable than the current methods. Siemens' wind power business and its Next47 venture unit will be involved to speed the development of the new technologies.