TETHYS BLAST

September 29, 2017

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.

Security Updates for Tethys

Tethys regularly preempts security concerns to ensure that all links to and from our website are safe and secure. We recently implemented a firewall to prevent malicious attacks. A significant amount of testing was performed, so there should be no impact to you. However, if you do encounter the firewall, please let us know and we will quickly respond.

Recent Webinars

WREN hosted a public webinar on September 20 about *Upscaling Wind and Wildlife Individual Interactions to Population-Level Impacts*. In case you missed it, a recording is available on Tethys.

Annex IV hosted a public webinar on September 21 about *Information Collection and Consenting Processes for Wave and Tidal Deployments - Lessons from the Field*. In case you missed it, a recording is available on Tethys.

Request for Proposals

The National Renewable Energy Laboratory's (NREL's) Technology Development and Innovation for Addressing Wind Wildlife Operational Challenges has released a request for proposals calling for low- to mid-technology readiness level wildlife detection and/or deterrent mitigation solutions, with a focus on levels 3 through 5. National Wind Technology Center's facilities and expertise will support the research and development of these technologies, which may include stand-alone systems, integrated, multicomponent systems, or integrated solutions into standard turbine controls. Proposals are due by October 13.

Learn more about the request for proposals at FedBizOpps.gov:
https://www.fbo.gov/spg/DOE/NREL/NR/RAT-7-70326/listing.html

Upcoming Seminar

The Wind Power and Biodiversity Seminar will be held in Artigues-près-Bordeaux, France on November 21-22. The seminar provides an opportunity to draw up a state of knowledge on the potential impacts of wind farms and how to assess and mitigate them in order to reconcile the development objectives of renewable energies with the appropriate protection of wildlife. You can find more information and register here.

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:

Hydrodynamic Impacts of a Marine Renewable Energy Installation on the Benthic Boundary Layer in a Tidal Channel - Fraser et al. 2017

> Field measurements of the flow in the benthic boundary layer (BBL) of a tidal channel are presented which compare data collected in the wake of a marine renewable energy installation (MREI) with control data representative of the natural conditions. The results show significant flow modification in the wake of the MREI including a reduction in mean velocity, enhanced turbulence, and the breakdown of the natural structure and dynamics of the BBL. This study provides new information relevant to the environmental impact assessment of MREIs and to the design and consenting of marine renewable energy projects.

Developing High-Resolution Spatial Data of Migration Corridors for Avian Species of Concern in Regions of High Potential Wind Development - Katzner 2014

> In addition to being important to the development of wind power, the mid-Atlantic region holds a special responsibility for the conservation of the eastern North America's golden eagles (*Aquila chrysaetos*). This small population breeds in northeastern Canada, winters in the southern Appalachians, and nearly all of these birds pass through the mid-Atlantic region twice each year. Movement of these birds is not random and, particularly during spring and autumn, migrating golden eagles concentrate in a narrow 30-50 mile wide corridor in central Pennsylvania.

Challenges and Opportunities in Monitoring the Impacts of Tidal-Stream Energy Devices on Marine Vertebrates - Fox et al. 2017

> Marine tidal-stream renewable energy devices (MREDs) are beginning to move from demonstration to early commercial deployment. However, the ecological impacts which may result when large arrays of these devices are deployed are unknown. This uncertainty is placing a considerable burden on developers who must collect biological data through baseline and post-deployment monitoring programs under the Environmental Impact Assessment process.

An Analytical Impact Assessment Framework for Wildlife to Inform the Siting and Permitting of Wind Energy Facilities - Schwartz 2013

> ICF developed an analytical framework to help applicants and agencies examine potential impacts in support of facility siting and permitting. A key objective of our work was to develop a framework that is scalable from the local to the national level, and one that is generalizable across the different scales at which biological communities operate – from local influences to meta-populations. The intent was to allow natural resource managers to estimate the cumulative impacts of turbine strikes and habitat changes on long-term population performance in the context of a species demography, genetic potential, and life history.

Setting an Agenda for Biofouling Research for the Marine Renewable Energy Industry - Loxton et al. 2017

> Extensive marine growth on man-made structures in the ocean is commonplace, yet there has been limited discussion about the potential implications of marine growth for the wave and tidal energy industry. In response, the Environmental Interactions of Marine Renewables (EIMR) Biofouling Expert Workshop was convened. Discussions involved participants from the marine renewable energy (MRE) industry, anti-fouling industry, academic institutions and regulatory bodies. The workshop aimed to consider both the benefits and negative effects of biofouling from engineering and ecological perspectives.

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. 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

£4.5m boost for Anglesey tidal energy development - BCC News

> The Welsh Government has announced £4.5m in funding for marine and tidal energy development in north Wales. The money - £4.2m from the EU and £300,000 from the Welsh Government - will support work on the Morlais tidal energy demonstration zone off the coast of Anglesey.

Bombora obtains US, AU patents for wave membrane tech - Tidal Energy Today

> Bombora Wave Power has been granted patents both in the USA and Australia for its wave energy technology based on inflatable membranes. The Australian wave energy developer Bombora has patented the technology for the extraction of energy from waves by using air-inflated rubber membranes mounted to a concrete structure on the sea floor, all arranged at an angle to the incoming waves.

Japanese wave turbines combine generation with protection - The Engineer

> A new type of turbine designed at Japan's Okinawa Institute of Science and Technology (OIST) could generate electricity while simultaneously protecting coastlines from erosion. The Wave Energy Converter (WEC) project involves using multiple turbines near the shoreline, which harvest the energy of crashing waves. Like the concrete tetrapods and wave breakers used on coasts around the world, the turbines would help dissipate the incoming power of the ocean, helping to limit erosion.

Marine energy research institute proposed for New Zealand - Hydroworld

> The Green Party of Aotearoa, New Zealand, has proposed creating the Taranaki Regional Research Institute. Located on the western side of the country's North Island, the institute would focus on developing marine energy technology. Green Party energy and resources spokesperson, Gareth Hughes, made the announcement this week and the government of New Zealand could fund the institute.

Uksnøy inks deal with HydroWave for green power solution - Tidal Energy Today

> Norway-based owner and offshore vessels provider Uksnøy & Co has signed a contract with HydroWave for the supply of hybrid wave-powered system for use with ships and offshore installations. The contract represents the first commercial order for the hybrid wave energy and batteries system, based on patented Havkraft Wave Energy Converter (H-WEC) technology, according to Sogn Industri, one of the owners of the HydroWave company.

Wind Energy

New study: Offshore wind creates new homes for fish - AWEA

> A new study should excite ocean anglers as well as fans of ocean energy: Offshore wind farms act as artificial reefs, scientists say, creating new habitats and food sources for fish. Researchers studied the offshore wind farms appearing with increasing regularity in Europe… The research team concluded that a typical offshore turbine can support up to four metric tons of shellfish.

Final turbine installed on 332 megawatt offshore wind farm - CNBC

The final turbine for the Nordsee One offshore wind farm has been installed and commercial operations are set to commence by the end of this year. Tim Kittelhake, managing director and COO of Nordsee One, said in an announcement at the end of last week that turbine installation had been completed within seven months. The site is located in the North Sea, around 40 kilometers to the north of the island of Juist.

Scientists tracking bird and bat activity using equipment on wind farm tower - Block Island Times

Deepwater Wind, the developer that constructed the Block Island Wind Farm three miles off of the coast of Block Island, is partnering with researchers on a new pilot study aimed at helping scientists track bird and bat activity and their migration patterns off the Atlantic Coast using a tracking station installed on one of the wind farm's turbine towers.

Triton goes large with MHI Vestas - ReNews

Innogy has selected MHI Vestas to supply 9.5MW turbines to the Contract for Difference winning 860MW Triton Knoll offshore wind farm in the UK North Sea. The developer and partner Statkraft will use 90 of the upgraded V164 machines, "one of the first in the world" to take advantage of the world's most powerful turbine. The deal is at the preferred supplier stage, which means "the wind farm project will now work with MHI Vestas to maximise and build on the manufacturer's already strong UK footprint".

Pen-y-Cymoedd wind farm officially opens - BCC News

It is important for Wales to continue investing in renewable energy, according to the environment secretary. Lesley Griffiths made comments before Wales' biggest onshore wind farm was officially opened in south Wales on Thursday. There are 76 turbines at the £365m Pen y Cymoedd site built between Neath and Aberdare.