TETHYS BLAST

19 January 2024

Tethys is a knowledge hub with information and resources on the environmental effects of wind and marine energy. The bi-weekly Tethys Blast highlights announcements and upcoming events; new documents in the Knowledge Base; and international energy news. ORJIP Ocean Energy has partnered with OES-Environmental to provide additional content. Email us to contribute!

Announcements
Upcoming Events

Marine Energy Documents
Wind Energy Documents

Marine Energy News
Wind Energy News

Announcements

WREN Webinar Recording Available

Working Together to Resolve Environmental Effects of Wind Energy (WREN) recently hosted its first Spanish webinar, "Impactos de la Energía Eólica en Latinoamérica (Impacts of Wind Energy in Latin America)", featuring speakers from Argentina, Chile, and Mexico (recording).

Community Energy Innovation Prize

The U.S. Department of Energy (DOE) launched the Community Energy Innovation Prize to award cash prizes and mentorship opportunities to organizations supporting innovation, entrepreneurship, capacity building, and economic development in communities historically underrepresented in climate and energy technology funding. Applications for the Clean Energy Ecosystem and Manufacturing Ecosystem Track are due on 2 February 2024.

New Funding for U.S. Colleges & Universities

The U.S. DOE's Water Power Technologies Office (WPTO) and Wind Energy Technologies Office (WETO) released a $14.5 million funding opportunity to support foundational research at U.S. institutions of higher education to address challenges facing marine and ocean renewable energy industries and spur innovation and development. Concept papers are due 20 February 2024. WPTO and WETO will host an informational webinar on 24 January 2024 at 3:00pm EST (8:00pm UTC) to discuss the funding opportunity and areas of focus.

BOEM Seeking Public Comments

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking public comment on its:

- proposed offshore wind lease sale for the Central Atlantic and its draft Environmental Assessment for site assessment and characterization activities (due 12 February 2024);
- intent to prepare a Programmatic Environmental Impact Statement (PEIS) for the offshore wind leases areas in central and northern California (due 20 February 2024);
- draft PEIS for offshore wind leases areas in the New York Bight (due 26 February).

Synchro Wants Low-Cost Tech

To meet the growing demand for advanced ocean observing capabilities, Synchro recently launched a solicitation for information to guide procurement of low-cost technology. This opportunity is aimed at supporting low-cost innovative technologies for marine biological and ecological observing. Submissions are due by 31 January 2024.

Calls for Abstracts & Papers

The 2024 State of the Science Workshop on Offshore Wind Energy, Wildlife, and Fisheries is now accepting proposals for symposia and side meetings and abstracts for oral and poster presentations through 26 January 2024. The workshop will take place 16-19 July 2024 in Long Island, New York, U.S.

RenewableUK has opened the Call for Papers for Global Offshore Wind 2024 (GOW24) until 26 January 2024. GOW24 will take place on 18-19 June 2024 in Manchester, England.

The University Marine Energy Research Community (UMERC) and Marine Energy Technology Symposium (METS) have opened the Call for Papers for the 2024 UMERC+METS Marine Energy Research Conference until 1 March 2024. The conference will take place 7-9 August 2024 in Duluth, Minnesota, U.S.

The Call for Abstracts for the International Conference on Ocean Energy (ICOE 2024) is open until 5 March 2024. ICOE 2024 will take place 17-19 September 2024 in Melbourne, Australia.

RenewableUK and Scottish Renewables have opened the Call for Papers for Floating Offshore Wind 2024 until 15 March 2024. The conference and exhibition will take place 9-10 October 2024 in Aberdeen, Scotland.

The Call for Abstracts for the Asian Offshore Wind, Wave and Tidal Energy Conference (AWTEC 2024) is now open through 20 March 2024. AWTEC will take place on 20-24 October 2024 in Busan, Korea.

Funding & Testing Opportunities

The European Commission's Horizon Europe Framework Programme has opened a Call for Additional Activities for the European Partnership for a Climate Neutral, Sustainable and

Productive Blue Economy. This call is open to companies from European Union (EU) countries and a selected number of non-EU/non-Associated countries. Applications due 28 February 2024.

The Natural Environment Research Council (NERC) and The Crown Estate have announced an upcoming funding opportunity, Ecological effects of floating offshore wind (ECOFLOW), for eligible UK research organizations. Applications will be due 29 February 2024.

The Testing Expertise and Access for Marine Energy Research (TEAMER) program, sponsored by the U.S. DOE and directed by the Pacific Ocean Energy Trust (POET), is accepting Request for Technical Support (RFTS) 12 applications through 1 March 2024 to support marine energy testing and development projects. Open Water Support applications can be submitted any time.

Career Opportunities

Pacific Northwest National Laboratory (PNNL) is looking for a Post Masters Research Associate - Human Dimensions of Energy Systems to join the Operational Systems Engineering group within its Earth Systems Science Division. Applications are due 11 February 2024.

Nova Innovation is seeking a Procurement Manager to develop and manage Nova's supply chain relationships, Project Engineer to support the technical delivery of their marine energy projects, and Office Administrator to manage a diverse range of general office activities.

Upcoming Events

Upcoming Webinars

The UK Marine Climate Change Impacts Partnership (MCCIP) is hosting its fourth 'Rolling Evidence' Webinar, on 24 January 2024 from 1:00-2:00pm UTC, which will focus on seabirds and waterbirds, and coastal and marine transport and infrastructure. Register here.

The International Energy Agency Wind Task 34, Working Together to Resolve Environmental Effects of Wind Energy (WREN), is hosting a webinar, "Wind Energy and Terrestrial Mammals", on 5 February 2024 from 11:00am-12:00pm EST (4:00-5:00pm UTC). During the webinar, presenters from Brazil, Portugal, and the United States will discuss how jaguars and pumas, wolves, and pronghorn antelope interact with wind energy facilities. Register here.

PNNL and the National Renewable Energy Laboratory are hosting an informational Marine Energy Career Panel on 7 February 2024 from 3:00-4:30pm PST that will feature National Laboratory staff who are working to advance the marine energy industry. The webinar is aimed at current students and those interested in working in the marine energy industry. Register here.

France Énergies Marines is hosting an informational webinar, "DRACCAR-MMERMAID - Monitoring of marine megafauna off the coast of Fécamp", on 9 February 2024 from 10:00-

11:00am UTC. Join the French webinar to learn more about this project, its objectives, and the various monitoring of marine megafauna that will be implemented.

Upcoming Conferences

The 6th Symposium of the Scottish Marine Energy Research Programme (ScotMER) will take place 6-8 February 2024 online. ScotMER will also be hosting participatory workshops on socioeconomics and Scotland's National Marine Plan 2.

The Supergen Offshore Renewable Energy Hub is hosting its 7th Early Career Researchers Forum on 23 April 2024 and 7th Seventh Annual Assembly on 24 April 2024 at the University of Plymouth in Plymouth, England. Registration is now open.

New Documents on Tethys

Tethys hosts thousands of documents on the environmental effects of marine and wind (land-based and offshore) energy, including journal articles, conference papers, and reports.

Marine Energy

Balancing power production and coastal protection: A bi-objective analysis of Wave Energy Converters – Battisti et al. 2024

> Wave Energy Converters (WECs) have the potential to serve dual purposes, generating power and protecting coastlines. Although traditionally the focus has been on maximizing power generation for cost-effectiveness, growing impacts of climate change have made coastal protection increasingly imperative. However, power production and coastal protection have been addressed separately, missing potential synergies. This paper addresses this gap by conducting a bi-objective analysis to investigate the interactions between power extraction and wave attenuation for a single Oscillating Surge Wave Converter (OSWC) and WEC farms of three and five units. A linear Power Take-Off (PTO) system, with passive and reactive control strategies, is examined.

Developing expert scientific consensus on the environmental and societal effects of marine artificial structures prior to decommissioning – Knights et al. 2024

> Thousands of artificial ('human-made') structures are present in the marine environment, many at or approaching end-of-life and requiring urgent decisions regarding their decommissioning. No consensus has been reached on which decommissioning option(s) result in optimal environmental and societal outcomes, in part, owing to a paucity of evidence from real-world decommissioning case studies. To address this significant challenge, we asked a worldwide panel of scientists to provide their expert opinion. They were asked to identify and characterise the ecosystem effects of artificial structures in the sea, their causes and consequences, and to identify which, if any, should be retained following decommissioning.

Environmental and Social Acceptance module: reducing global and local environmental impacts for Ocean Energy Projects – Araignous et al. 2023

> Designing reliable ocean energy devices with reduced costs is crucial for the sector's development. This development of renewable energies should also be implemented in a sustainable manner and not cause additional environmental stress and related damage. In order for the ocean energy sector to consider environmental impacts at the earliest stage of concept creation, the Environmental and Social Acceptance (ESA) module was developed and included in an integrative suite of design and assessment tools (namely DTOceanPlus) to support technology innovation processes. Several complementary features were developed in the ESA module which provides insight into impacts at different levels.

Wind Energy

Impact of geophysical and geotechnical site investigation surveys on fish and shellfish – BlueWise Marine 2023

> BlueWise Marine has been engaged by Wind Energy Ireland to deliver a desktop study on the impact of Site Investigation Surveys on Fish and Shellfish. Ireland's Offshore Wind Energy programme includes a target to deploy at least 5 GW of offshore wind energy by 2030, as part of the Government's objective to generate 80% of Ireland's electricity from renewable sources by 2030. Initially led by the developers themselves, this interest has resulted in a high number of applications for Site Investigation Surveys throughout Ireland's Territorial Sea and EEZ filed with the Foreshore Licensing Unit. This, in turn, led to an increasing concern among the fishing communities regarding whether and how these surveys might reduce catches of fish and shellfish in addition to displacing fishers from their grounds.

The geographic extent of bird populations affected by renewable-energy development – Vander Zanden et al. 2024

> Bird populations are declining globally. Wind and solar energy can reduce emissions of fossil fuels that drive anthropogenic climate change, yet renewable-energy production represents a potential threat to bird species. Surveys to assess potential effects at renewable-energy facilities are exclusively local, and the geographic extent encompassed by birds killed at these facilities is largely unknown, which creates challenges for minimizing and mitigating the population-level and cumulative effects of these fatalities. We performed geospatial analyses of stable hydrogen isotope data obtained from feathers of 871 individuals of 24 bird species found dead at solar- and wind-energy facilities in California (USA). Most species had individuals with a mix of origins, ranging from 23% to 98% nonlocal.

Long-term monitoring of bird migration across the North and Norwegian Seas – Cordes & May 2023

> Renewable energy developments are expanding offshore in order to meet the world's energy demands, and floating structures permit previously undisturbed areas to be utilised. As a result, there are growing concerns over impacts on migrating birds, however, very little is known about the amount, timing, or position of offshore migration due to the challenges involved in obtaining such data. Here we summarise the sensor and non-sensor-based approaches that are suitable for monitoring offshore bird migration in the long-term including weather and avian radars, biologging, acoustics, laser scanners, camera technology, and citizen science. Each of these sensor-based and observational-based approaches come with their own strengths and weaknesses in terms of, for example, their spatial and temporal scale and resolution.

News & Press Releases

Marine Energy

Harnessing the Power of Our Oceans to Drive Decarbonisation Solutions in Ocean Industries – Blue Economy Cooperative Research Centre (CRC)

> Offshore industries rely heavily on diesel generated energy. As industries look to replace diesel and commit to net zero pathways, the opportunity to access novel oceanic renewable energy sources like wave energy is paramount. Following extensive industry collaboration and feedback on the requirements, constraints and challenges of industry operating in offshore environments through the Blue Economy CRC research program, MoorPower™ is being developed to provide clean, reliable, predictable energy, reducing the requirement for fossil fuels. Carnegie Clean Energy's wave-powered barge concept, 'MoorPower™' has been successfully deployed and is now operational in an offshore waters test site in North Fremantle, WA.

Project update Vestmanna – Launch and Recovery procedure for utility scale tidal powerplant Dragon 12 verified – Minesto

> Minesto has successfully executed the Launch & Recovery method (LARS) for the first megawatt tidal kite Dragon 12 (1.2 MW, 25 tons). The operations developed for the Dragon 4 (100 kW, 2.5 tons) were proven equally effective with the large-scale kites utilizing the same small work vessel. The commissioning of the Launch and Recovery System (LARS) of the Dragon 12 has been successfully completed. The scale-up of the powerplant has not required changes in the smaller Dragon 4 kite operation for launch and recovery when applied to the Dragon 12. The D12 is ten times heavier, three times larger, uses a longer tether and is installed at larger water depth. These changes in the kite parameters proved to be fully manageable with the existing LARS method, thus verifying both technical method and assessments of operating costs.

HydroWing creates unique new barge to service its tidal energy technology – HydroWing

HydroWing has designed an innovative new barge which will help drive down the cost of installation and maintenance for its patented tidal stream array technology. HydroWing is designed to be a cost-effective and scalable solution to tidal stream energy generation and was the largest tidal stream project in Wales to be successful in the UK government's latest Contracts for Difference round, having been awarded a 10MW project at the Morlais tidal energy site in Anglesey. Commercialisation of the tidal energy sector has so far been held back by high operations and maintenance costs. HydroWing's next generation technology addresses that challenge head on. Its HydroWing technology offers a modular, reliable solution, based on its unique patented design.

The Mutriku wave plant achieves cumulative electricity production of three million kilowatts per hour – Biscay Marine Energy Platform (BiMEP)

The wave plant of Mutriku, the first worldwide commercial project associated with the wave power sector, has surpassed a new milestone in the field of wave energy by reaching cumulative electricity production of three million kilowatts per hour. The Mutriku plant is the first European commercial plant that uses wave energy to generate electricity, the world's oldest and the one that accumulates more hours of operation. Since its launch in 2011, the Mutriku wave energy plant has been 12 and a half years old, generating clean energy continuously. It has passed several stages of development and has exceeded the production records achieved so far by a renewable installation of marine energy. It produces approximately 300,000 kWh per year.

MOL's OTEC project in Mauritius steps closer to commercialization – Offshore Energy

An ocean thermal energy conversion (OTEC) project developed by Japan's Mitsui O.S.K. Lines (MOL) in Mauritius has made a step towards commercialization by being selected for a program commissioned by Mauritius' Ministry of Economy, Trade and Industry (METI). MOL's project involves an initial study on installing water intake pipes, a part of a larger study. This study aims to assess the viability of using deep ocean water for commercial OTEC in Mauritius. From May 2022 to May 2023, MOL conducted a study, commissioned by the New Energy and Industrial Technology Development Organization (NEDO). The study, "Study on the Conformity of Demonstration Requirements for the Combined Use of Deep Ocean Water with OTEC as the Core in Mauritius", evaluated Mauritius's suitability as the primary developer for OTEC facilities.

Wind Energy

Floating wind farm EOLMED: BOURBON successfully completes the first stage of the project in 2023 and asserts a leadership role in floating offshore wind – Bourbon

With the successful installation this autumn of a Floating Electrical Hub (FEH) off Port-la-Nouvelle (southern France), Bourbon Subsea Services teams have laid the foundation stone for the Eolmed project, a pilot floating wind farm located off Gruissan in the

Mediterranean. This project will involve three wind turbines producing more than 110 million KwH/year by 2025, which is equivalent to the consumption of 50,000 inhabitants. The FEH is a floating infrastructure that will be connected to the three wind turbines on one side and the shore connection cable on the other, enabling the transportation of electricity to the power grid. This first major step, which took over a year to prepare, mobilized about thirty BOURBON experts covering the design, manufacture, towing and installation of the FEH and its subsea mooring system.

On offshore wind farms, seafood production may be a breeze – Horizon

Off the coasts of Belgium, Denmark, Germany and the Netherlands dozens of wind farms whir away, helping Europe switch to renewable energy from fossil fuels. Some of those wind farms are also helping Europe do something few people might imagine: grow seafood. The activity represents a promising new approach to tapping natural resources. Called "multiuse", it involves the sharing of offshore space and is a big departure from the usual idea of exclusive operating rights. 'Traditionally, most things are done separately,' said Alex Ziemba, a researcher at Deltares, a Dutch institute specialised in water and subsurface. 'If you want a wind farm, you put it over there. If people want to go fishing, they go over there. You chop everything up into a nice marine spatial plan and everyone has their own little areas.'

OX2 and Ingka Investments apply for permit to construct the offshore energy hub Neptunus – OX2

OX2 and Ingka Investments, the investment arm of Ingka Group – the biggest IKEA retailer – have submitted a permit application under the act of Sweden's Exclusive Economic Zone to construct the offshore energy hub Neptunus off the coast of Blekinge, in the south of Sweden. The energy hub Neptunus is planned to comprise up to 207 wind turbines with a maximum height of 420 meter and will be situated about 50 kilometers from the coast. The application encompasses a total installed capacity of 3,100 MW. The production is estimated to about 13-15 TWh annually, which corresponds to the current total electricity consumption of the Blekinge and Skåne region. OX2 has previously applied for a Natura 2000 permit for the energy hub. If permits are obtained, construction can start in 2030.

The Crown Estate commissions new research on how to assess the social impact of marine activities – The Crown Estate

The Crown Estate, a national landowner and manager of the seabed around England, Wales and Northern Ireland, has commissioned the University of Exeter to conduct an evidence review of social impact assessments in the marine space to enhance understanding of how to deliver social value through its marine activities. The Crown Estate is responsible for the leasing process for a wide range of marine industries, including offshore wind, carbon capture, tidal and wave energy, as well as aquaculture. It recognises that, delivered in the right way, these leasing processes have the potential to

drive social value for coastal communities – something it is already exploring with developers as part of leasing plans for floating offshore wind in the Celtic Sea.

World's First Floating Wind Farm to Undergo First Major Maintenance Campaign, Turbines to Be Towed to Norwegian Port – Offshore Wind

The world's first commercial-scale floating wind farm, the 30 MW Hywind Scotland, officially entered the operations and maintenance phase in October 2017. After a little over six years of operation, the wind farm's Siemens Gamesa wind turbines are now due for some major maintenance work. While offshore wind farms undergo turbine maintenance work more than once during their lifespans and tasks such as major component exchange are nothing uncommon, this is the first time a campaign of this kind will be done on a floating farm. The maintenance will be performed during the Summer in the Gulen Port in Norway.