TETHYS BLAST

19 July 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

Power at Sea Prize

The U.S. Department of Energy's (DOE) Water Power Technologies Office (WPTO) is accepting submissions for the Powering the Blue Economy: Power at Sea Prize, which awards competitors to advance technologies that use marine energy to power ocean-based activities, through 26 July 2024.

BOEM Seeking Public Input

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking public input on its Draft Environmental Analysis for its Gulf of Maine Offshore Wind Area through 22 July 2024. BOEM is also seeking ideas for baseline environmental and socioeconomic studies to inform decisions on potential offshore wind energy activities in the U.S. territories, as well as information on entities in the U.S. territories that have the capabilities, expertise, and interest in carrying out environmental monitoring and conducting studies. The deadline to respond is 23 August 2024.

NOAA NCCOS Seeking Volunteers

The National Oceanic and Atmospheric Administration's (NOAA) National Centers for Coastal Ocean Science (NCCOS) is seeking volunteers to participate in a focus group to share their thoughts about offshore wind energy on the Gulf of Mexico coast. The deadline is 26 July 2024.

BWEC 5-Year Plan

The Bats and Wind Energy Cooperative (BWEC), a multi-stakeholder endeavor to advance science-based solutions that cost effectively quantify and mitigate the impact of wind turbines on bats, recently released its 5-Year Plan. The plan includes an overview of the BWEC, including its structure, peer review process, schedule, and planned activities through 2028.

WCOA Requests for Proposals

The West Coast Ocean Alliance (WCOA) is requesting proposals to support meeting design, logistics, and facilitation for its Tribal Caucus Summit on13-15 January 2025 and the WCOA Annual Summit on 15-17 January 2025, in Ocean Shores, Washington, U.S. The deadline for both Requests for Proposals are due by 13 August 2024.

Calls for Abstracts

The American Geophysical Union (AGU) has opened the Call for Abstracts for the AGU 2024 Annual Meeting through 31 July 2024. AGU 2024 will take place 9-13 December 2024 in Washington, D.C. and will feature a session on Marine Energy to Power the Blue Economy.

The Ocean Thermal Energy Association has opened the Call for Speakers for the 10th International Ocean Thermal Energy (OTEC) Symposium through 31 July 2024. The symposium will take place 4-5 December 2024 in Rio de Janeiro, Brazil.

The Call for Abstracts for 7th Asian Offshore Wind, Wave and Tidal Energy Conference (AWTEC 2024) has been extended through 31 July 2024. AWTEC will take place 20-24 October 2024 in Busan, South Korea.

The Call for Abstracts for Floating Wind Solutions 2025 is now open through 1 August 2024. Floating Wind Solutions will take place 15-17 January 2025 in Houston, Texas, U.S.

The Marine Alliance for Science and Technology for Scotland (MASTS) has opened the Call for Abstracts for the MASTS 2024 Annual Science Meeting through 22 August 2024. The meeting will take place 5-7 November 2024 in Glasgow, Scotland.

The Call for Abstracts for WindEurope's Annual Event 2025 is now open through 6 September 2024. The annual event will take place 8-10 April 2025 in Copenhagen, Denmark.

The Call for Abstracts for the Offshore Technology Conference (OTC 2025) is open through 10 September 2024. OTC will take place 5-8 May 2025 in Houston, Texas, U.S.

Funding & Testing Opportunities

The U.S. DOE's WPTO recently opened a nearly $5 million funding opportunity to support programming and services for entrepreneurs and small businesses in marine energy. Concept papers are due 7 August 2024.

UK Research and Innovation has opened a follow-on funding opportunity to build on existing engineering and physical sciences research outputs to accelerate economic, societal, policy and environmental benefits. Applications must build on prior Engineering and Physical Sciences Research Council funding. Applications are due 24 September 2024.

New Jersey's Research and Monitoring Initiative has released a Request for Proposals to support research projects focused on furthering ecologically responsible offshore wind development. Letters of intent are due 28 August 2024 and proposals are due 9 October 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) 14 applications through 4 October 2024 to support marine energy testing and development projects. Open Water Support applications can be submitted any time.

The National Offshore Wind Research and Development Consortium (NOWRDC) intends to run a competitive solicitation, "Solicitation 4.0 - Innovations in Floating Offshore Wind", that will fund $10.6 million of projects that address several major areas of need for floating offshore wind, including uncrewed underwater vehicles for environmental monitoring. The full solicitation is expected to be published in August 2024 and close in November 2024.

Career Opportunities

The U.S. DOE WPTO is seeking a Fellow to engage with the its Arctic Energy Office in Alaska and carry out work on water-power related topics within the state of Alaska.

The University of Hawai'i is looking for a Technical Program Manager to manage the U.S. Navy's Wave Energy Test Site, marine energy research & development, and other Department of Defense-funded marine energy research projects. Applications are due 19 July 2024.

Renewable Energy Wildlife Institute (REWI) is launching a search for a new Executive Director to lead REWI to its next level of financial, programmatic, and organizational success. Applications are due 31 July 2024.

SMRU Consulting is looking for an Offshore Wind Specialist Associate and/or Senior Scientist with experience in consenting and impact assessment to support its marine mammal consulting work in the UK, Ireland, and possibly the U.S. Applications are due 5 August 2024.

Avangrid is looking for a Senior Offshore Wind Permitting Manager to manage and coordinate permitting and compliance efforts for the New England Wind 1 Offshore Wind Project. The job posting closes on 20 September 2024.

Upcoming Events

Upcoming Webinars

The SEER team is continuing its free, public webinar series to share the latest research on the potential environmental effects of offshore wind energy development. The next webinar, Oceanographic Responses to Offshore Wind: From First Principles to Potential Effects, will take place on 23 July 2024 from 9:00-10:00am PDT (4:00-5:00pm UTC). The speakers will describe the models and methods used to study interactions between oceanographic processes and offshore wind, highlighting studies from Europe and the United States. Register here.

The U.S. DOE's WPTO is hosting its WPTO Semiannual Stakeholder Webinar: AI, Machine Learning, and Water Power on 22 August 2024 from 12:30-2:00pm EDT (4:30-6:00pm UTC). The webinar will feature experts from WPTO for a discussion on artificial intelligence and machine learning, including where they see potential benefits and uses of these tools in the hydropower and marine energy sectors and where they may already be in use.

Upcoming Masterclass

The Supergen Offshore Renewable Energy Hub is hosting a Masterclass on Real-Time Hardware-in-the-Loop Experiments for Grid Integration of Offshore Renewable Energy Systems on 4 September 2024 at the University of Warwick in Coventry, England. Register here.

Upcoming Conferences

The University Marine Energy Research Community (UMERC) + Marine Energy Technology Series (METS) Conference 2024 will take place on 7-9 August 2024 in Duluth, Minnesota, U.S.

The International Conference on Ocean Energy (ICOE 2024) will take place on 17-19 September 2024 in Melbourne, Australia. The preliminary program is now available.

Ocean Energy Europe is hosting the Ocean Energy Europe 2024 Conference & Exhibition on 5-6 November 2024 in Aviemore, Scotland.

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

State of the Sector Report 2024 – Marine Energy Wales 2024

> Marine Energy Wales' latest State of the Sector Report collates spending and economic data from its network of members, and highlights and celebrates Wales' progress and achievements within the industry over the past 12 months. This year's report shows tidal stream emerges as by far the biggest contributor to date, injecting £116.1 million into the Welsh economy since 2019. Much of this has been fuelled by the infrastructure buildout at Morlais on Anglesey and the activity of tidal kite developer Minesto. It is closely

followed by supply chain spend, which accounts for £63.6 million to date. The latest figures also show the sector sustains 429 full-time jobs in Wales, spanning a diverse range of roles, and an improving gender balance across the industry.

Country-Specific Guidance Document: Mexico – OES-Environmental 2024

The guidance documents are intended to be available for regulators and advisors as they carry out their decision-making and for developers and consultants as they prepare consenting and licensing applications. This country-specific document presents an overview of regulations relevant for marine renewable energy development in Mexico from pre-application, through to application and post-consent and is intended mainly for developers and consultants. It is not intended to replace any formal guidance or prescribe action, but rather provide a starting point for understanding the key requirements of the regulatory framework. This document is intended to be read in conjunction with the background document.

Systematic Analysis of Potential Marine Renewable Energy for Coastal Ecological Balance on Bawean Island: A Review – Sari et al. 2024

Bawean Island displays significant natural potential with abundant natural resources and natural beauty that is attractive for tourism and industrial development. However, this potential is threatened by various environmental and socio-economic problems such as limited availability of clean water, erosion of coastal structures, accumulation of rubbish, economic challenges, and low levels of community education. To overcome these challenges, an integrated and sustainable approach is needed that involves the government, community, and other related parties in sustainable natural resource management and considers ecological, economic, and social aspects. Systematic analysis is carried out to understand the potential of coastal natural resources and the problems that threaten the ecosystem.

Wind Energy

Environmental DNA for monitoring the impact of offshore wind farms on fish and invertebrate community structures – Cornelis et al. 2024

To reach the renewable energy targets set by the European Commission, a tenfold expansion of the installed offshore wind farms is needed. Since the construction of offshore wind farms may affect local soft-sediment fauna, an efficient monitoring technique is needed to monitor the potential effects on the marine ecosystem. Here, we assess whether eDNA metabarcoding is a suitable alternative to monitor fish and epibenthos biodiversity in these difficult to access marine habitats. Water sampling and trawl surveys were conducted in parallel in 12 coastal and 18 offshore sites, the latter located inside and outside two offshore wind farms in the Belgian part of the North Sea. 12S eDNA metabarcoding retrieved 85.7% of the fish species caught in the beam trawls, whereas the COI eDNA metabarcoding only identified 31.4% of the epibenthic invertebrate species.

Context-dependent effects of wind turbines on bats in rural landscapes – Sotillo et al. 2024

> Rural landscapes are undergoing widespread changes, of which homogenization and the installation of wind turbines are important components. To keep track of the impacts of homogenization and the presence of wind turbines on biodiversity, the responses of vulnerable organisms should be assessed considering their combined effects. We have tested the response of bat activity to the interaction between agricultural landscape gradients reflecting the degree of homogenization (parcel size, parcel diversity and density of hedges), and the presence of wind turbines. To do this, we combined acoustic sampling data gathered from 2014 to 2020 throughout continental France with land use and wind turbine siting data.

Strong site fidelity, residency and local behaviour of Atlantic cod (*Gadus morhua*) at two types of artificial reefs in an offshore wind farm – Berges et al. 2024

> Globally, biogenic temperate reefs are among the most threatened habitats. In the North Sea in particular, large shellfish reefs were lost owing to fishing activities in the 1900s. The impact of offshore wind farms (OWFs) on marine wildlife is extensive, and it offers the possibility to reintroduce new hard substrate habitats that are protected from fisheries at a large scale. In addition to the submerged structures of OWFs, marine hard substrate habitat can be further enhanced by providing extra artificial reefs. In an operational OWF along the Dutch coast, four artificial reefs (two with a scour bed and two without) were deployed in the vicinity of a wind turbine. Acoustic telemetry was used to monitor the fine-scale movement of 64 Atlantic cod (*Gadus morhua*).

News & Press Releases

Marine Energy

Cable installation set to begin for OSU-led wave energy testing facility off Oregon coast – Oregon State University (OSU)

> Crews later this month will begin installing the power and data cables that are essential to completing construction of a new wave energy testing facility off the Oregon Coast. The cables will support Oregon State University's PacWave South, the first pre-permitted, utility-scale, grid-connected wave energy test site in the United States. When the facility is completed, wave energy developers will be able to test different technologies for harnessing the power of ocean waves and transmitting that energy to the local electrical grid. The work includes installing four power and data cables ranging in length from about 10 to 13 continuous miles from a vault under the parking lot of Driftwood Beach State Park south of Newport out to the test site offshore.

EU project focused on environmental monitoring of ocean energy devices gets another extension – Offshore Energy

The EU-backed SafeWAVE project, which has the aim of overcoming some of the non-technological barriers that could hinder the future development of ocean energy, has been extended until December 2024. The extension of the Streamlining the Assessment of Environmental Effects of Wave Energy (SafeWAVE) project is said to allow the project partners to continue addressing the non-technological barriers that could hinder the future development of ocean energy, a key pillar of the EU Blue Growth strategy. The project works to improve knowledge of the environmental effects and risks of wave energy through the collection, processing, analysis, and sharing of environmental data around devices operating at sea and modeling of cumulative impacts of future larger-scale deployments.

Wavepiston to announce collaboration with Ørsted. – Wavepiston

Wavepiston has started a collaboration with Ørsted to investigate the potential for co-location of offshore wind and wave energy in Denmark. The collaboration will analyse the benefits of combining offshore wind and wave energy and show the potential of optimising the energy yield from the natural resources available in Danish waters. A co-location of offshore wind and wave energy presents a multitude of benefits, including increased energy production, enhanced grid stability, cost efficiency, and environmental benefits. Emiel Schut, CCO, says, "We are excited about the opportunities this collaboration presents and the positive impact it can have on the environment and energy market of the future."

UK company unveils quick connection system for floating structures – Offshore Energy

UK-based Blackfish Engineering has unveiled a mooring system, called C-Dart, which eliminates the direct handling of heavy mooring lines by operational personnel. The system is designed to rapidly connect various floating structures and assets, including wave and tidal energy converters, offshore wind, floating solar platforms, aquaculture, and more, according to the company. By utilizing the principles of gravity, buoyancy, and rope tension, the C-Dart system facilitates a contact-free, automated connection process that secures equipment securely and swiftly, Blackfish said. The system's rapid connect and disconnect capability is said to cut down the time typically required for offshore operations which is vital in reducing the overall operational costs and downtime, particularly in the high-stakes environment of renewable energy projects.

Decommissioning of tidal energy platform – Ocean Kinetics

Scottish engineering partners, Ocean Kinetics and Green Marine (UK) have successfully completed the first phase of decommissioning a tidal energy platform at EMEC's Falls of Warness test site in the Orkney Islands. The contract to decommission the facility, which was previously operated by OpenHydro to streamline its tidal turbine technology, was awarded by EMEC in early April this year. Ocean Kinetics divers, riggers, welders and ROV operators are deployed alongside Green Marine's offshore management, vessel, mooring and operational cable services, with both companies carrying out the operational

engineering, cutting and heavy lifts. To return the seabed to its original condition, diamond wire cutting machines will cut each pile foundation flush to the seabed.

Wind Energy

Ørsted successfully pilots new technology that further optimises offshore wind monopile installation – Ørsted

Building on existing marine life protections, Ørsted has developed a new, lower-noise installation method that could potentially revolutionise the way offshore wind foundations are installed. The groundbreaking new technology has been successfully tested in Germany, proving that this innovative approach can dramatically reduce noise levels during foundation installations, strengthening existing protections to marine life and potentially paving the way for the next generation of monopile foundations. The noise mitigation method involves a patented jetting technology attached to the monopile, which lowers the resistance of the surrounding sandy soil, effectively allowing the foundation to sink into the seabed – completely replacing conventional installation methods such as pile driving.

Australia Approves Twelve Offshore Wind Projects, Set to Generate 25 GW Capacity – Offshore Wind

A total of twelve offshore wind projects have now been granted feasibility licenses for the Gippsland Offshore Wind Zone, enabling a potential generation capacity of 25 GW, according to Chris Bowen, Australia's Minister for Climate Change and Energy. In May, the Australian government granted the initial licences to six offshore wind projects, with a combined capacity of approximately 12 GW. Now, twelve projects have been granted feasibility licences for the Gippsland Offshore Wind Zone, enough to generate 25 GW, more electricity than the entire state of Victoria generated last year. RWE has been granted a feasibility licence from the Australian government for developing the Kent Offshore Wind Farm project in the Bass Strait, off the Gippsland coast. BlueFloat Energy's proposed Gippsland Dawn Offshore Wind Project has also been granted a feasibility licence.

Governor Hochul Announces Start of Construction on New York's Largest Offshore Wind Project – New York State Governor's Office

Governor Hochul recently announced the start of construction on New York's largest offshore wind project, Sunrise Wind, a 924-megawatt project developed by Ørsted. Once completed, the project will provide enough clean energy to power approximately 600,000 New York homes. Building on New York's 10-Point Action Plan, the Governor also announced the issuance of New York's fifth offshore wind solicitation to advance the next wave of clean energy development projects off the state's coast, with final proposals due on September 9, 2024. The announcement also included the launch of New York's fifth offshore wind solicitation. The competitive solicitation, administered by the New

York State Energy Research and Development Authority (NYSERDA), is a critical next step toward bolstering the State's growing large-scale renewable industry.

Project WinDTwin Pioneers a New Era of Offshore Wind Energy Optimisation: Revolutionising Wind Power Forecasting and Management through Cutting-Edge Digital Twin Technology – WinDTwin Project

The offshore wind energy sector is poised for a significant transformation with the launch of WinDTwin, a groundbreaking European-funded project aimed at revolutionising wind power production forecasting and management. With a grant of €6 million, this three-year initiative unites a diverse consortium of 13 entities from 7 countries, unified by the goal of creating a highly accurate and dynamic digital twin (DT) for offshore wind farms. To address these challenges, WinDTwin will develop a sophisticated digital twin platform. This platform aims to transform the industry by offering precise predictions of power production and energy demand. It will serve as a central hub for decision-makers, offering access to a suite of high-quality resources, models, scenarios, and visualisations, thus enabling more informed and strategic choices in the management of offshore wind energy.

FLOWIC official opening – Offshore Renewable Energy (ORE) Catapult

ORE Catapult's £9 million national Floating Wind Innovation Centre (FLOWIC) is the world's first dedicated innovation centre for floating offshore wind which was officially opened on Monday 18 March 2024. FLOWIC is located in the heart of Aberdeen's Energy Transition Zone and has been delivered in collaboration with ETZ Limited to help supercharge the development of floating offshore wind technology in the UK. FLOWIC has also received funding from both the Scottish Government and Innovate UK. Floating offshore wind represents a huge economic opportunity, with more than 19GW of potential projects in the pipeline through the ScotWind Leasing process, a new leasing round on the horizon in the Celtic Sea, and the prospect of transferring skills and knowledge from oil and gas to aid the Just Transition.