



**3 March 2023**

[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!

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## **Announcements**

### DOE Request for Information

The U.S. Department of Energy (DOE) Wind Energy Technologies Office (WETO) and Water Power Technologies Office (WPTO) are [requesting information](#) on university-based offshore wind energy centers and the co-location of aquaculture and ocean renewable energy. Responses are due by 5:00pm EDT (9:00pm UTC) on 15 March 2023.

### BOEM Seeking Comments

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking comments on the draft Environmental Impact Statement for the proposed [SouthCoast Wind](#) project (due 3 April 2023), a [proposed rule](#) to better protect shipwrecks and other cultural resources on the seabed from harm due to offshore energy activities (due 17 April 2023), and a [proposed sale notice](#) in the Gulf of Mexico (due 23 April 2023).

### New RWSC Committees

The Regional Wildlife Science Collaborative for Offshore Wind (RWSC) is inviting interest in membership in two new Subcommittees: Protected Fish Species Subcommittee and Technology Subcommittee. Please complete [this form](#) to express your interest. The RWSC Steering Committee and staff will review submissions and invite members to each Subcommittee shortly.

## Ocean Data Survey

Ocean Motion Tech is partnering with the Oregon State University to study the community impacts of increased ocean data collection enabled by small-scale marine energy. To participate, please complete the online survey corresponding to your specific role: [Ocean Scientist](#), [Non-Scientist Data User](#), [Coastal Community Member](#), or [Marine Energy Researcher/Developer](#).

## Calls for Abstracts

The Partnership for Research in Marine Renewable Energy (PRIMaRE) has opened the [Call for Abstracts](#) for the [10th PRIMaRE Conference](#) through 10 March 2023. The conference will take place on 27-28 June 2023 in Bath, England.

The Pan American Marine Energy Conference (PAMEC) Association is now accepting [Expressions of Interest](#) to submit an extended abstract for presentation at [PAMEC 2024](#) through 15 March 2023. Extended abstracts will be due 26 June 2023. PAMEC will take place on 22-24 January 2024 in Barranquilla, Colombia, with pre-conference workshops on 19-20 January 2024.

The [Call for Abstracts](#) for [OCEANS 2023 Gulf Coast](#) is now open through 17 April 2023. OCEANS 2023 Gulf Coast will take place 25-28 September 2023 in Biloxi, Mississippi, U.S.

The [Call for Abstracts](#) for the [University Marine Energy Research Community \(UMERC\) 2023 Conference](#) is now open through 23 April 2023. UMERC 2023 will take place on 4-6 October 2023 in Durham, New Hampshire, U.S. Apply for travel/registration support by 15 June 2023.

## Calls for Papers

The *International Council for the Exploration of the Sea (ICES) Journal of Marine Science* is inviting submissions for a themed article set on “[Assessing the impact of expanding offshore wind energy](#)”. Manuscripts are due 3 April 2023.

*Water* is inviting submissions for the Special Issue, “[The Blue Economy: Evaluating the Human Benefits from and Pressures on Marine and Coastal Environments, Volume II](#)”. Manuscripts are due 20 April 2023.

## Funding & Testing Opportunities

The U.S. Testing and Expertise and Access for Marine Energy Research (TEAMER) program, sponsored by the U.S. DOE’s WPTO and directed by the Pacific Ocean Energy Trust (POET), is now accepting [Request for Technical Support 9](#) applications until 3 March 2023.

The New York State Energy Research and Development Authority (NYSERDA) recently announced that nearly \$2.5 million is available to [support environmental and fisheries research](#) related to offshore wind energy development. Applications are due 13 March 2023.

The European Commission has launched the third call for large-scale projects under the [European Union Innovation Fund](#). The call is open until 16 March 2023 for projects located in European Union Member States, Iceland, and Norway.

The U.S. DOE recently announced a \$30 million [funding opportunity](#) to advance composite materials and additive manufacturing for large wind turbines including for offshore wind energy systems. Concept papers are due 23 March 2023 and full applications are due 9 May 2023.

The Horizon Europe Framework Programme recently launched a funding opportunity entitled, “[Demonstration of sustainable tidal energy farms](#)”, to de-risk tidal technology development and increase knowledge of potential environmental impacts. Applications are due 30 March 2023.

The Sustainable Blue Economy Partnership, a Horizon Europe co-funded partnership, recently announced its first [Joint Transnational Call](#) to support transnational research and innovation projects related to the blue economy. Pre-proposals are due 14 April 2023.

The U.S. DOE has opened applications for the [Energy Transitions Initiative Partnership Project \(ETIPP\)](#) for remote and island communities seeking technical assistance to transform their energy systems and increase energy resilience. An [informational webinar](#) will take place at 1:00pm MDT (7:00pm UTC) on 11 April 2023. Applications are due 19 May 2023.

### Student & Employment Opportunities

The Environmental Research Institute is seeking to appoint a [Postdoctoral Research Associate or Research Fellow](#) with interests in island energy systems, renewable energy or more widely in social sciences, environmental or resource economics, circular economy, environmental management and stewardship, or net-zero aviation. Applications are due 6 March 2023.

The European Marine Energy Centre (EMEC) is looking for a [Project Officer](#) to provide support with planning, resourcing, delivering, and monitoring projects and an [Environmental Officer](#) to implement its environmental monitoring program and provide guidance to manage risks associated with marine renewables. Applications are due 12 and 19 March 2023, respectively.

Pacific Northwest National Laboratory is seeking a [Coastal Modeler](#) to conduct numerical simulations using wave and coastal circulation models and analyze remotely sensed, in-situ collected, and numerically modeled datasets. Applications are due 24 March 2023.

Aarhus University is seeking a [Research Assistant](#) to support research projects and monitoring programs on marine mammals and underwater noise. Applications are due 24 March 2023.

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## Upcoming Events

### Upcoming Conferences

The Advanced Research Projects Agency–Energy (ARPA-E) will host its [13th ARPA-E Energy Innovation Summit](#) from 22-24 March 2023 in National Harbor, Maryland, U.S. Register [here](#).

American Clean Power (ACP) is hosting the [ACP Siting and Environmental Compliance Conference 2023](#) from 28-29 March 2023 in Albuquerque, New Mexico, U.S. Register [here](#).

The [WindEurope Annual Event](#) will take place from 25-27 April 2023 in Copenhagen, Denmark. Register [here](#).

The Pacific Ocean Energy Trust is hosting the [Ocean Renewable Energy Conference \(OREC 2023\)](#) on 21-22 June 2023 in Portland, Oregon, U.S. Additional details coming soon.

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## **New Documents on Tethys**

### **Marine Energy**

#### **[Effects of Tidal Stream Energy Exploitation on Estuarine Circulation and Its Seasonal Variability](#) – Sanchez et al. 2022**

Residual flows are of major importance in coastal areas, driving environmental processes such as sediment transport or nutrient dispersion. Consequently, in those areas where a large tidal stream energy resource is available, prior to the installation of a tidal farm, it is imperative to assess how energy extraction affects the residual flows and, in particular, upwelling events. In this paper, the potential effects of different configurations of tidal stream farms on the residual circulation and its seasonality are analysed by means of a case study: Ria de Ortigueira, the westernmost of the Galician Rias Altas (NW Spain). For this purpose, a 3D numerical model was implemented and validated against field measurements. Next, a total of eight case studies, including the operation of bottom-fixed and floating converters under typical summer and winter scenarios, considering upwelling favourable winds, were studied.

#### **[The Evolution and Future Prospects of China's Wave Energy Policy from the Perspective of Renewable Energy: Facing Problems, Governance Optimization and Effectiveness Logic](#) – Qi et al. 2023**

Wave energy is a kind of new marine renewable energy with broad development prospects. Many countries have launched aggressive public policies to promote the use of wave-energy technology. In this paper, 729 wave-energy policy documents were visually analyzed by Citespace software, and 31 Chinese wave-energy policy documents were visually analyzed by Nvivo software. It was found that, on the one hand, wave-energy policy research presents an upward trend. Compared with foreign wave-energy policy research, the research foundation of China's wave-energy policy is weak, the research is not in-depth enough, and the research enthusiasm is not high. On the other hand, China's wave-energy policy is gradually improving, showing a development trend from extensive

to detailed, with diversified policy tools and specific policy objectives, although there is still room for improvement.

### **Understanding the Value of Strategic Evidence Surveys to Support the Tidal Stream Energy Sector in Wales – Wood et al. 2022**

A recently published report – ‘*Review of Monitoring Methodologies and Technologies Suitable for use in High Energy Environments in Welsh waters*’, suggested merit in gathering strategic evidence for key marine features (marine mammals, birds and fish) to support the tidal stream sector. In response, the Welsh Government has commissioned The Centre for Environment, Fisheries and Aquaculture Science (Cefas) to provide advice on the value of surveys for new strategic evidence on migratory fish, marine mammals, and diving seabirds in relation to tidal stream resource areas around Wales. The advice, presented in this report will help to inform understanding of the need for, and practical considerations related to, potential surveys for strategic evidence which can support the sustainable growth of the tidal stream sector.

## **Wind Energy**

### **Long-Term Succession on Offshore Wind Farms and the Role of Species Interactions – Zupan et al. 2023**

The presence of biofouling communities in very large densities in offshore wind farms (OWFs) generates broad effects on the structure and functioning of the marine ecosystem, yet the mechanisms behind the temporal development of these communities remain poorly understood. Here, we use an 11-year series on biofouling fauna from OWFs installed in Belgian waters to determine succession patterns and to unravel the role of biological interactions in shaping community development. Our analysis shows that biological interactions, besides age and location, affect diversity patterns in OWFs. The abundance of foundation species, predators, and space occupiers was significantly related to richness and/or diversity. The trends in richness, diversity, and community composition suggest that no permanent stable climax is reached after 11 years.

### **Game bird carcasses are less persistent than raptor carcasses, but can predict raptor persistence dynamics – Hallingstad et al. 2023**

Researchers conduct post-construction fatality monitoring (PCFM) to determine a wind energy facility’s direct impacts on wildlife. As part of PCFM, investigators conduct carcass persistence trials to account for imperfect detection during carcass surveys. In most PCFM studies, pen-raised game birds and other non-raptor surrogates have been used to estimate persistence of all large birds, including raptors. However, there is a growing body of evidence showing carcass persistence varies by bird type; raptor fatality estimates based on game bird carcass persistence may therefore be biased high. We conducted raptor and game bird carcass persistence field trials for 1 year at 6 wind energy facilities. Raptor carcass persistence varied by habitat and season, whereas the best-supported game bird model only included habitat.

## **[The Role of Fishery-Independent Bottom Trawl Surveys in Providing Regional and Temporal Context to Offshore Wind Farm Monitoring Studies](#) – Gervelis et al. 2023**

Bottom trawl surveys are commonly used to examine potential effects on fishes and invertebrates from offshore wind (OSW) farms in Europe and in the northeastern United States. Because OSW surveys typically occur over a limited spatial footprint, comparison of OSW monitoring results to long-term fishery-independent surveys may provide a regional and temporal context for OSW data sets. We compared results of the Block Island Wind Farm (BIWF) bottom trawl survey (2013–2019) to three fishery-independent bottom trawl surveys (Northeast Area Monitoring and Assessment Program, Northeast Fisheries Science Center, and Rhode Island Department of Environmental Management [RIDEM]) using catch rates of 12 federally managed species. We evaluated temporal trends in annual residual catches for each species calculated within each survey as the difference between the mean annual biomass per trawl and the long-term mean.

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## **News & Press Releases**

### **Marine Energy**

#### **[One Size Does Not Fit All: Environmental Monitoring for Marine Energy](#) – Pacific Northwest National Laboratory**

The existence of numerous marine energy devices and environmental settings means there is no one-size-fits-all approach to monitoring. The Department of Energy Water Power Technologies Office's Triton Initiative is working to find ways to efficiently meet regulatory needs by researching scientifically backed environmental monitoring technologies for studying potential marine energy related impacts. The project's Triton Field Trials (TFiT) explored and tested monitoring technologies for studying potential environmental stressors around various marine energy devices in different settings. As part of TFiT, researchers monitored underwater noise, collision risk, changes in habitat, and electromagnetic fields and then provided recommendations on best practices to the industry.

#### **[CorPower wraps up preparatory trials ahead of C4 wave energy device deployment](#) – Offshore Energy**

Swedish company CorPower Ocean has completed load-out and towing trials for its C4 wave energy device, ahead of upcoming deployment offshore Portugal. As part of preparation for offshore installation at the Aguçadoura site in northern Portugal, the CorPower C4 system has been moved out from the quay-side 'launchpad' at the port of Viana do Castelo. The company also informed the offshore towing trials have been completed using local tugs. In line with a suitable weather window, the C4 system will be towed out and deployed at the Aguçadoura site, located 30 kilometers south of the port as part of the HiWave-5 wave energy project. The project will feature CorPower's first

commercial scale wave energy converter C4, which will form a four-system wave array off the coast Portugal, creating one of the world's first grid-connected wave farms.

### **Minesto strengthens market position in Asia – joins forces with renewable energy pioneer Taiwan Cement Green Energy – Minesto**

Minesto, leading ocean energy developer, and Taiwan Cement Green Energy have entered into a collaboration agreement to pursue tidal and ocean current energy build out in Taiwan. The agreement covers assessments of economic and technical feasibility of selected sites, site development, and applications for feed in tariffs. The energy transition agenda in Taiwan is ambitious but with significant challenges given the large share of fossils currently relied on (95%) The available ocean energy resource, when matched with the right technologies, opens up an opportunity to move forward rapidly and with higher ambitions. In 2022, a new Ocean Energy electricity feed-in tariff was introduced to support the transition into renewable energy.

### **Wave energy project on Nootka Island receives \$1-million grant – University of Victoria**

University of Victoria's Pacific Regional Institute for Marine Energy Discovery (PRIMED) has received one of 10 million-dollar grants under the 2022 TD Ready Challenge for their solution designed to assist people and communities disproportionately affected by climate change and the transition to a low-carbon economy, TD Bank Group. PRIMED is the only recipient from British Columbia. PRIMED is working towards the development of a first of its kind renewable energy microgrid incorporating a wave energy device at Yuquot on Nootka Island, a National Historic site and traditional home of the Mowachaht/Muchalaht First Nation, located off the west coast of Vancouver Island. The project will be at the cutting edge of renewable energy system development, support the Nation to achieve their long-held dream of re-occupying Yuquot after being forcibly relocated decades ago, and contribute to reconciliation.

### **Canadian hydrokinetic company to run feasibility study for Guyana project – Offshore Energy**

Vancouver-based company Instream Energy Systems has been tasked with carrying out a feasibility study for the installation of its hydrokinetic technology for a project in Guyana. The feasibility study is related to the potential installation of Instream Energy Systems' hydrokinetic technology for Reunion Gold Corporation (RGD)'s Oko West project in Guyana. Instream is developing a complete hydrokinetic power solution consisting of arrays of vertical axis hydrokinetic turbines (VAHTs) that convert the kinetic energy in moving water into electricity. According to Instream Energy Systems, its technology has the ability to produce energy without the need for dams, diversions, or reservoirs, which allows for a water-based renewable energy source with minimal environmental disruption at a lower cost of engineering, simpler construction and maintenance, less safety risk, and reduced regulatory issues.

## Wind Energy

### [U.S. Department of Energy Announces New Actions to Accelerate U.S. Floating Offshore Wind Deployment](#) – U.S. DOE

The U.S. DOE recently announced new investments to secure U.S. leadership in floating offshore wind development by advancing offshore wind transmission planning, research and technology, and partnerships. These announcements are part of the Biden-Harris Administration's Floating Offshore Wind Shot Summit, with the Departments of Energy, the Interior, Commerce, and Transportation convening stakeholders to drive progress. The new actions support the goals to reduce the cost of floating offshore wind energy by more than 70% by 2035 and deploy 15 gigawatts of floating offshore wind by 2035. The Floating Offshore Wind Shot is part of DOE's Energy Earthshots initiative, which aims to tackle key technical challenges associated with reaching the Biden-Harris Administration's climate goals by harnessing untapped renewable energy potential to mitigate climate change and advance the equitable transition to clean energy in America.

### [€3 million research project reveals how seabirds avoid offshore wind farms](#) – Vattenfall

Research using pioneering radar and artificial intelligence technology to track bird flight at the European Offshore Wind Deployment Centre (EOWDC) at Aberdeen has revealed remarkable insights into the flight behaviour of seabird species. The findings form part of a €3million research investment by Vattenfall to learn more about offshore wind and the environment around the EOWDC, one of the largest programmes of its kind in the world. The radar tracked birds flying towards Vattenfall's Aberdeen offshore wind farm which then activated cameras and generated 3-dimensional flight tracks and video footage. This was used to identify the species of bird as they moved through the wind farm, as well as monitor whether they altered their flight path around the turbines. The study produced invaluable data about the flying patterns of kittiwakes, herring gulls, black-backed gulls and gannets around the wind farm.

### [Finland to Test 15 MW Offshore Wind Turbines in Freezing Sea Conditions](#) – Offshore Wind

Finland's Ministry of Economic Affairs and Employment has granted EUR 30 million to Suomen Hyötytuuli, the owner and operator of the country's only offshore wind farm, to support the development of the Tahkoluoto demonstration project off Pori. The funding will go towards the installation of two 15 MW turbines in proximity to the 44.3 MW Tahkoluoto offshore wind farm which has been in operation since 2017. The aim of the project is to demonstrate a foundation concept suitable for deeper waters, as well as underwater construction methods suitable for conditions offshore Finland. The demonstration project will be located in the planning area, and the project will be implemented in the years 2023–2026, meaning before the expected construction of the Tahkoluoto wind farm extension. Tahkoluoto is Finland's first offshore wind farm and at the same time the world's first offshore wind farm built for freezing sea conditions.



### **Erebus, Wales' pioneering floating wind project secures marine licence – Blue Gem Wind**

Blue Gem Wind, the joint venture between TotalEnergies, one of the world's largest energy companies, and Simply Blue Group, has secured a marine licence for the 100MW Erebus project. Working with OWC, MarineSpace, ITP Energised and Burges Salmon, and following a comprehensive Environmental Impact Assessment process, Blue Gem Wind was granted a marine licence for the Erebus project on February 17th. Erebus, Wales' first planned floating windfarm is located approx 40km off the Pembrokeshire coastline and will house seven next generation 14MW turbines on WindFloat® floating platforms, providing enough low carbon energy to power 93,000 homes, contributing to net zero targets and energy security. The Celtic Sea and floating wind is poised to play a key role in net zero, the Climate Change Committee 100GW+ offshore wind target, and help deliver the UK Energy Security Strategy.

### **Denmark to Auction Off 9 GW of Offshore Wind in 2023 – Offshore Wind**

Denmark plans to put 9 GW of new offshore wind capacity out to tender by the end of the year in an effort to increase its offshore wind capacity fivefold by 2030, according to the country's Ministry of Climate, Energy and Utilities. The government and the authorities are working to ensure that there is a quick clarification on whether offshore wind turbine projects and other renewable energy projects under the open door scheme are in breach of EU law, the Ministry said. However, parallel to the dialogue with the EU Commission, Denmark's Climate, Energy and Utilities Minister Lars Aagaard has announced that he will start putting 9 GW of offshore wind out to tender this year via state tenders. The turbines from the 9 GW of offshore wind will be able to produce green electricity equivalent to covering the annual electricity consumption of more than nine million Danish and European households. The power can also go to Danish PtX projects.