



**24 May 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!

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[Announcements](#)  
[Upcoming Events](#)

[Marine Energy Documents](#)  
[Wind Energy Documents](#)

[Marine Energy News](#)  
[Wind Energy News](#)

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## **Announcements**

### 2024 State of the Science Report

Ocean Energy Systems (OES)-Environmental has released a draft of the [OES-Environmental 2024 State of the Science Report: Environmental Effects of Marine Renewable Energy Development Around the World](#) for public comment. If you would like to provide feedback on the draft report, please [complete this review form](#) by 28 June 2024. The draft report serves as an update to the [2020 State of the Science Report](#) and features several new sections, including resources to advance marine renewable energy and moving beyond stressor-receptor interactions.

### Welsh Consultation

The Welsh Government has opened a [Consultation on Strategic Resource Areas for Marine Planning](#) and is seeking views on proposals to identify Strategic Resources Areas (SRAs) for tidal stream energy. Comments are due 5 June 2024.

### CWC Applications Open

Applications for the U.S. Department of Energy (DOE) Wind Energy Technologies Office's [2025 Collegiate Wind Competition \(CWC\)](#) are open through 13 June 2024. CWC helps students prepare for jobs in the wind energy workforce through real-world experiences with wind energy technology, project development, finance, communications, and outreach.

## ETIPP Applications Open

The U.S. DOE recently announced that applications are open for the [Energy Transitions Initiative Partnership Project \(ETIPP\)](#), which provides technical assistance for remote and island communities to bolster their energy resilience through tailored solutions, through 10 July 2024.

## BOEM Seeking Public Comments

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

- Draft Environmental Assessment for wind leases off [Oregon](#) (due 31 May 2024)
- Proposal for a first offshore wind auction in the [Gulf of Maine](#) (due 1 July 2024)

## Calls for Abstracts

The [Call for Abstracts](#) is open for the [North American Wind Energy Academy \(NAWEA\) / WindTech 2024 Conference](#) through 24 May 2024. NAWEA/WindTech will take place from 28 October to 2 November 2024 in New Brunswick, New Jersey, U.S.

The Renewable Energy Wildlife Institute has opened the [Call for Abstracts](#) for [15<sup>th</sup> Wind Wildlife Research Meeting \(WWRM 2024\)](#) through 3 June 2024. WWRM will take place on 12-15 November 2024 in Corpus Christi, Texas, U.S.

The [Call for Abstracts](#) for the [3rd GloFouling Research & Development Forum and Exhibition on Biofouling Prevention and Management for Maritime Industries](#) is now open through 15 June 2024. The event will take place 4-8 November 2024 in Busan, South Korea.

## Funding & Testing Opportunities

The U.S. DOE has announced \$25 million in funding to [support clean energy technology deployment on Tribal lands](#). DOE is soliciting applications from Indian Tribes, which include Alaska Native Regional Corporations and Village Corporations, Intertribal Organizations, and Tribal Energy Development Organizations. Applications are due 30 May 2024.

Energiaren Euskal Erakundea / Ente Vasco de la Energía has opened an [investment support programme to support demonstration and validation activities of innovative technologies for wave and offshore wind energy](#), with the potential to contribute to greater adoption of renewable energies in the Basque Country. Applications are due 19 June 2024.

The National Fish and Wildlife Foundation is soliciting proposals to promote the development and adoption of innovative technologies that can help reduce vessel strikes of the endangered North Atlantic right whale (right whale). The [Vessel Strike Avoidance Fund 2024](#) will award up to \$6 million in grants, pending availability of funding. Pre-proposals are due 25 June 2024. An [informational webinar](#) will take place on 30 May 2024 at 3:00pm EDT (7:00pm UTC).

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 \(RFTS\) 13](#) applications through 28 June 2024 to support marine energy testing and development projects. Open Water Support applications can be submitted any time.

### Career Opportunities

The U.S. BOEM is looking for a [Fish Biologist](#) to support studies associated with fisheries biological and managerial impacts resulting from offshore conventional and renewable energy and mineral exploration and development activities. Applications are due 29 May 2024.

The Yorkshire Wildlife Trust is looking for a [North Sea Marine Planning Officer](#) to lead on responses to marine development applications, with a focus on large scale infrastructure and energy projects in the North Sea region. Applications are due 7 June 2024.

The University of Southampton is offering a [PhD Studentship: Tackling the Geotechnical Challenges of Floating Offshore Wind](#) to join the UK-funded Offshore Renewable Energy Supergen Hub project. Applications are due 31 August 2024.

Ocergy is looking for a [System Engineer](#) to contribute to the design and deployment of its zero-emission environmental monitoring platform that offers an extensive biodiversity assessment and metocean data acquisition for the characterization of offshore wind sites.

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## Upcoming Events

### Upcoming Webinars

The Renewable Energy Wildlife Institute and National Renewable Energy Laboratory are continuing their virtual [Wind Energy & Wildlife Training](#) on 29-30 May 2024. The training will address science and policies related to wind energy and wildlife, with a focus on Colorado, New Mexico, Texas, Utah, and Wyoming.

The New York State Energy Research and Development Authority (NYSERDA) is hosting a [Learning from the Experts webinar](#) on “Innovations and Emerging Technologies in Offshore Wind”, on 29 May 2024 from 1:00pm-2:00pm EDT (5:00-6:00pm UTC). During the webinar, the National Offshore Wind Research and Development Consortium (NOWRDC) will present new and emerging advancements within the offshore wind industry related to technology, transmission, environmental mitigation, and site characterization.

The U.S. DOE’s WINDEXchange initiative is hosting a webinar, “[Winding Down: End of Service and Recycling for Wind Energy](#)”, on 30 May 2024 at 1:00pm EDT (5:00pm UTC). During the webinar, experts from the National Renewable Energy Laboratory will introduce attendees to key concepts in end-of-service processes for wind energy technologies and infrastructure, including decommissioning, repowering, and recycling. [Register here.](#)

Marine Renewables Canada is hosting an Ask an Expert webinar, “[Lessons Learned and Best Practices for Coexistence with Other Ocean Users](#)”, on 22 June 2024 from 2:00-3:00pm ADT (5:00-6:00pm UTC). During the webinar, Dr. Alison Bates will highlight some of the lessons

learned from her work in offshore wind and co-existence, providing valuable knowledge and perspective that can inform the responsible development of offshore wind. [Register here.](#)

### Upcoming Workshops

The Marine Environmental Data and Information Network (MEDIN) and OceanWise are hosting a free online training workshop, “[Marine Data Management, Governance and the MEDIN Toolset](#)”, on 3-7 June 2024. This training course is for anyone responsible for collecting or managing marine environmental data, including researchers, technicians, and students.

Pacific Northwest National Laboratory is hosting a three-part virtual workshop on understanding Pacific Northwest community, tribal, and other public information needs around marine carbon dioxide removal (MCR) and marine renewable energy (MRE). The workshop will take place in three two-hour sessions. Please save these dates and [register for the workshop](#) to participate:

- 17 June 2024, 1:00-3:00pm PDT: Kickoff Meeting and mCDR-focused discussion
- 18 June 2024, 1:00-3:00pm PDT: MRE-focused discussion
- 21 June 2024, 10:00am-12:00pm PDT: Bridging mCDR and MRE needs

### Upcoming Conferences

Reuters Events is hosting [Offshore Wind USA 2024](#) on 17-18 June 2024 in Boston, Massachusetts. [Register here.](#)

RenewableUK is hosting [Global Offshore Wind 2024](#) on 18-19 June 2024 in Manchester, England. [Register here.](#)

Bluesign is hosting the [Seanergy 2024 Forum](#), France’s international event on offshore renewable energy, on 26-28 June 2024 in Nantes, France. [Register here.](#)

### Upcoming Symposium

The International Network on Offshore Renewable Energy (INORE) is accepting applications from graduate students, early-stage researchers, and young professionals in offshore renewable energy to attend its [2024 European Symposium](#) through 9 June 2024. The symposium will take place from 26 August to 1 September 2024 in Aberdeen, Scotland and is free to attendees.

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## **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**

[Localized Tidal Energy Extraction in Puget Sound Can Adjust Estuary Reflection and Friction, Modifying Barotropic Tides System-Wide](#) – Spicer et al. 2024

Harvesting energy via tidal stream turbines is being increasingly considered as a renewable energy resource in estuaries with strong tidal currents. It remains unclear how localized energy extraction changes basic tidal physics throughout real systems. Here, we analyze the influence of an extensive synthetic tidal turbine array on barotropic tides in the Salish Sea, a complex, tidally energetic estuary, using a realistic numerical model. Tidal energy fluxes are calculated at 15 sections throughout the system and decomposed into incident and reflected components, as well as by frequency. Results show the dominant semidiurnal constituent, M2, controls the total tidal energy flux everywhere. When turbines are placed in Tacoma Narrows, the M2 energy flux is enhanced at sections seaward of the array in Puget Sound and reduced landward.

### **[Resource Modeling Assessment and Environmental Biological Analysis in Turnagain Arm, Cook Inlet, AK](#) – Lee et al. 2024**

The deployment and operation of a floating and/or submerged tidal technology in the United States coastal water require characterizing tidal stream resource potential and assessing environmental conditions and satisfying all environmental permitting requirements. The waters of Cook Inlet, Alaska have some of the strongest and most consistent tidal currents in the U.S. This project seeks to examine the potential for tidal energy development in Turnagain Arm, an inlet between Anchorage and the Kenai Peninsula (Figure (a)), in the upper Cook Inlet. The Turnagain Arm Tidal Electricity Generation (TATEG) site covers 137 square miles of Turnagain Arm where the tidal range at the site reaches 10m, and has been awarded a FERC preliminary permit.

### **[Dashboard for Marine Energy Site Assessment and Monitoring](#) – Flanary et al. 2024**

The marine energy (ME) industry presently relies upon fragmented site assessment solutions that require high resource expenditure for deployment at each site and do not leverage the wealth of readily available tools and information. A wave energy resource assessment dashboard, currently in development, will substantially improve siting, permitting, operations, and maintenance of ME projects by providing an integrated solution that is a one-stop-shop for a developer's needs. The Site Energy Assessment and Monitoring Dashboard (SEAMOD) will be of commercial interest to anyone seeking to deploy an ME project and is easily expandable to include tidal and wind energy site assessments. The integrated dashboard is being developed using state-of-the-art database and cloud computing methods and data-assimilative modeling tools that can be coupled with low-cost, rapidly deployable wave buoys and environmental sensing hardware.

## **Wind Energy**

### **[Autonomous thermal tracking reveals spatiotemporal patterns of seabird activity relevant to interactions with floating offshore wind facilities](#) – Schneider et al. 2024**

Planning is underway for placement of infrastructure needed to begin offshore wind (OSW) energy generation along the West Coast of the United States and elsewhere in the Pacific Ocean. In contrast to the primarily nearshore windfarms currently in the North

Atlantic, the seabird communities inhabiting Pacific Wind Energy Areas (WEAs) include significant populations of species that fly by dynamic soaring, a behavior dependent on wind and in which flight height increases steeply with wind speed. Therefore, a more precise and detailed assessment of their 3D airspace use is needed to better understand the potential collision risks that OSW turbines may present to these seabirds. Toward this end, a novel technology called the ThermalTracker-3D (TT3D), which uses thermal imaging and stereo vision, was developed to render high-resolution (on average within  $\pm 5$  m) flight tracks and related behavior of seabirds.

### **[Toward solving the global green–green dilemma between wind energy production and bat conservation](#) – Voigt et al. 2024**

Wind energy production is growing rapidly worldwide in an effort to reduce greenhouse gas emissions. However, wind energy production is not environmentally neutral. Negative impacts on volant animals, such as bats, include fatalities at turbines and habitat loss due to land-use change and displacement. Siting turbines away from ecologically sensitive areas and implementing measures to reduce fatalities are critical to protecting bat populations. Restricting turbine operations during periods of high bat activity is the most effective form of mitigation currently available to reduce fatalities. Compensating for habitat loss and offsetting mortality are not often practiced, because meaningful offsets are lacking.

### **[Answering the key stakeholder questions about the impact of offshore wind farms on marine life using hypothesis testing to inform targeted monitoring](#) – Cresci et al. 2024**

Stakeholders need scientific advice on the environmental impacts of offshore wind (OW) before the facilities are installed. The utility of conventional environmental monitoring methods as a basis for forecasting OW impacts is limited because they do not explain the causes of the observed effects. We propose a multistep approach, based on process-oriented hypothesis testing, targeted monitoring and numerical modeling, to answer key stakeholder questions about planning an OW facility: Q1—Where do we place future OW farms so that impacts on the ecosystem are minimized? Q2—Which species and ecosystem processes will be impacted and to what degree? Q3—Can we mitigate impacts and, if so, how? and Q4—What are the risks of placing an OW facility in one location vs. another?

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## **News & Press Releases**

### **Marine Energy**

#### **[U.S. Department of Energy Announces Winners of 2024 Marine Energy Collegiate Competition](#) – U.S. DOE**

The U.S. Department of Energy recently announced the winners of the 2024 Marine Energy Collegiate Competition (MECC). The University of New Hampshire was the

overall winner, repeating its win from the 2023 competition. Purdue University took second place, and Oakland University and Oregon State University tied in third place. Marine energy technologies harness the power of waves, tides, and ocean and river currents. The annual MECC, now in its fifth year, challenges multidisciplinary collegiate teams to develop solutions that can help power sectors in the blue economy, like aquaculture or ocean observation. Students gain hands-on experience by identifying markets for marine energy technologies and designing their own device.

### **C-Power upgrades SeaRAY and sends it back to Hawaii – Offshore Energy**

U.S.-based marine energy company C-Power has upgraded the SeaRAY ocean energy system, and returned it back to Marine Core Base Hawaii in Oahu, from the company's facility in Corvallis, Oregon. At the company's facility, SeaRAY acquired more refined power electronics and some other improvements, C-Power said. C-Power plans to redeploy SeaRAY for the second phase of the field test at the U.S. Navy's wave energy test site (WETS) this summer, demonstrating the SeaRAY's ability to power subsea sensors and a Saab Sabertooth AUV. The SeaRAY autonomous offshore power system (AOPS) offers power, energy storage, and real-time communications for autonomous and connected ocean technologies. It supports uncrewed offshore activities and equipment, such as subsea vehicles, sensor packages, and operating equipment.

### **FloWave celebrates tenth anniversary – The University of Edinburgh**

The FloWave Ocean Energy Research Facility has accelerated ocean technology for over a decade, bridging the gap between conceptual research and full-scale ocean testing. FloWave, the world's first circular combined wave and current simulation tank, has celebrated a decade of innovation in marine energy development and continues to shape the future of renewable ocean energy. Over the last 10 years, the team has investigated over 50 distinct renewable technologies, working with researchers, designers and engineers from 21 countries. Tests have ensured companies including Orbital Marine Power, Mocean Energy and EnerOcean could deploy their tidal, wave and floating wind devices. The £12 million facility, funded by Engineering and Physical Sciences Research Council (EPSRC), is extensively used for the testing of scaled down prototypes of new commercial technologies and for ocean based academic research.

### **Minesto presents performance data from Dragon Class starting at Annual General Meeting – Minesto**

In a recent presentation at the AGM (Annual General Meeting), Minesto shares Dragon Class performance data based on accumulated analysis of Dragon 4 power production curve and verified simulation modelling. The data plays a key role in third-party technical feasibility evaluations and in calculating yearly yields for investment proposals at specific site locations. The power-curve data show power generation at given tidal current speeds and constitutes a good performance measure of how capable the Dragon Class technology is in converting the kinetic energy in the flowing ocean to electric power. The data presented today explains the importance of matching the right

powerplant (Dragon) configuration (modularity) with specific site conditions (e.g., ocean flow conditions) to optimize output at a given tidal site.

### **EU Blue Champions unveiled: 20 companies will receive advisory support to grow their business – Ocean Energy Europe (OEE)**

The European Commission and the European Investment Bank (EIB) unveiled 20 “EU Blue Champions” who will receive advisory support to grow their business. Originating from Croatia, Denmark, France, Germany, Greece, Italy, Norway, Portugal, Spain, and Sweden these champions are involved in various sectors ranging from tidal and wind energy solutions, underwater robotics, and vertical research vessels to satellite data applications for blue technologies, and aquaculture or biorefinery activities. Following an open call for proposal launched in 2023, 70 projects from the EU and from Norway submitted their applications for the newly created Blue Champions Programme. OEE members HydroQuest and SCHOTTEL Marine Technologies are amongst the 20 EU Blue Champions winners.

### **Tidal energy company gets new name and new CEO – Offshore Energy**

Nova Scotia’s Occurent Power, formerly known as BigMoon Power, has rebranded and appointed its new CEO, Jay McKenna. The rebranding to Occurent Power aligns with the company’s goal of providing zero-emissions power to coastal communities, offering environmental and economic benefits for stakeholders and capital partners, said Occurent Power. Occurent Power’s first facility, under an existing power purchase agreement with Nova Scotia Power, will be at the Fundy Ocean Research Centre for Energy (FORCE) in the Minas Passage, Bay of Fundy. Procurement administrator Power Advisory LLC picked BigMoon as an applicant to fill the vacant berth at FORCE, back in September 2020.

## **Wind Energy**

### **Five Competitors Advance to Final Round of FLoating Offshore Wind ReadINess Prize – U.S. DOE**

In support of the Floating Offshore Wind Energy Earthshot, the U.S. DOE recently announced winners of Phase Two of the FLoating Offshore Wind ReadINess (FLOWIN) Prize. Competing teams began with a proven floating offshore wind energy substructure design and, in Phase One, developed pathways to manufacture their systems for deployment in gigawatt-scale offshore wind farms. Each of the five Phase Two winners receive a cash prize of \$450,000 and a \$100,000 voucher that can be used for technical support at DOE national laboratories. The FLOWIN Prize was designed to inspire solutions to some of the biggest challenges related to supply chains and large-scale execution faced by the offshore wind energy industry.

### **France announces winners of world’s first commercial-scale floating offshore wind auction – WindEurope**



France recently announced the winners of the 250 MW South Brittany floating offshore wind auction, the world's first commercial-scale floating offshore wind auction. This is a major milestone for floating offshore wind technology. So far Europe has only built small pilot and demonstrator projects. The announcement took place as Minister Delegate Lescure inaugurated France's second fully-commissioned bottom-fixed offshore wind farm in Fécamp (Seine-Maritime). The tendered 250 MW site will not only be the biggest floating offshore wind farm in Europe upon completion. It will also more than double Europe's current floating offshore wind capacity. The auction was won by a consortium of BayWa re and Elicio. 10 different consortia bid, showing the huge interest in developing floating offshore wind. The winning bid was awarded at €86/MWh.

### **“Steel in the Water” for Next Two Large U.S. Offshore Wind Farms – The Maritime Executive**

Two of the larger offshore wind farms planned for the U.S. East Coast have each gotten underway with their offshore installation. Coming just months after the commissioning of the first commercial-scale U.S. offshore wind farm it is the latest demonstration of the building momentum in the sector after the challenges in 2023. Located roughly 15 miles south of the Rhode Island coast and 32 miles southeast of the Connecticut coast, the Revolution Wind project is adjacent to Ørsted and Eversource's South Fork Wind, America's first utility-scale offshore wind farm. The project also highlights that it will be the first multi-state offshore wind farm in the United States supplying power to both states.

### **RWE tests artificial reefs at offshore wind farm in the Baltic Sea – RWE**

As a leading player in offshore wind, RWE is investigating how artificial reefs at offshore wind farms in the Baltic Sea can affect the marine ecosystem and whether they can create an attractive marine habitat, particularly for blue mussels, algae and fish species. In partnership with Linnaeus University and cable service provider Baltic Offshore Kalmar AB, RWE is conducting a pilot study in the Swedish Baltic Sea. After month of preparation, collection of water samples and seabed assessments, the study has entered its practical phase with the installation of artificial reefs at RWE's Kårehamn wind farm (48 MW, 16 turbines) 7 km off the Swedish coast. 180 carbon neutral, plastic-free reef cubes® have been deployed on the seabed to assess how marine life is settling here. The research is planned to continue until 2026.

### **Construction work begins on Germany's largest offshore wind farm in the North Sea – EnBW**

“He Dreiht” is Low German for “It spins.” A more fitting name could hardly have been chosen for what is currently Germany's largest offshore wind farm. That's because there will be a great deal of spinning going on in the North Sea once 64 wind turbines with a total capacity of 960 megawatts have been installed. EnBW is thus building a “wind power plant” with a capacity comparable to today's conventional power plants, producing enough electricity for 1.1 million households. In the first offshore auction held in

Germany, EnBW secured the contract for the project back in 2017. The unique thing about this project is that He Dreiht will be built without state funding. Around 2.4 billion euros are being invested in it.

### **Introducing the Pacific Offshore Wind Consortium – Schatz Energy Center**

A new West Coast collaboration for offshore wind science was recently announced in Sacramento. The Pacific Offshore Wind Consortium (POWC) is a joint effort between three research centers: the Schatz Energy Research Center at Cal Poly Humboldt, the Pacific Marine Energy Center at Oregon State University, and the Center for Coastal Marine Sciences at Cal Poly San Luis Obispo. Together, these universities are housed in and support the coastal communities in California and Oregon which are anticipated to host floating offshore wind development. The POWC (pronounced *pow-sea*) will enable universities, host communities, and Tribal nations to share resources, co-develop best practices, and design comprehensive research programs that reflect the dynamic nature of the ocean environment and the diversity of community perspectives.