



**14 April 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**

[New Tethys Story](#)

**[WOW! A Collaboration to Study the Impacts of Offshore Wind on Wildlife](#) by Madeleine Paris, Kristin Hodge, Corrie Curtice, Patrick Halpin, Douglas Nowacek (Duke University)**

The Department of Energy's (DOE) Wind Energy Technologies Office recently announced \$13.5 million for four projects to provide critical environmental and wildlife data to assist responsible offshore wind development. As part of that effort, Duke University is leading the Wildlife and Offshore Wind (WOW) project, which aims to address data gaps and develop geospatial mapping tools, conservation technologies, and operational practices that identify and protect species that might be at risk. Read more in the latest Tethys Story [here](#).

[New ECO Wind Bat Summary](#)

The Enabling Coexistence Options for Wind Energy and Wildlife ([ECO Wind](#)) project recently published a new [Summary of Bats and Land-Based Wind Energy Development in the United States and Canada](#) on Tethys.

[MECC Applications Open](#)

The U.S. DOE's Water Power Technologies Office (WPTO) has opened applications for the 5th annual [Marine Energy Collegiate Competition \(MECC\)](#), which challenges multidisciplinary teams to develop solutions for ways marine energy can help power the blue economy. Both U.S.

and non-U.S. institutions can apply, but only U.S. institutions are eligible for WPTO funding. Applications are due 24 April 2023. Applications for the 2nd [Hydropower Collegiate Competition \(HCC\)](#) are also open through 24 April 2023.

### Internship Applications Open

The U.S. DOE's Office of Science has opened applications for the [Science Undergraduate Laboratory Internships \(SULI\)](#) program, [Community College Internships \(CCI\)](#) program, and [Visiting Faculty Program \(VFP\)](#). Applications are due on 25 May 2023.

### Request for Information

On behalf of the Mowachaht/Muchalaht First Nation, Barkley Project Group is releasing a [Request for Information](#) to determine wave energy converter technologies that are capable of integrating with a microgrid system at Yuquot (Nootka Island, British Columbia). Interested respondents should provide detailed information on how they propose to engage with the Yuquot Microgrid Project within the [summary document](#) by 5:00 pm PDT on 14 April 2023.

### BOEM Seeking Comments

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking comments on 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), the [draft Environmental Impact Statement](#) for the proposed SouthCoast Wind project offshore Massachusetts (due 18 April 2023), and a [proposed sale notice](#) in the Gulf of Mexico (due 23 April 2023).

### Calls for Abstracts

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 April 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 [Clean Currents 2023](#) is now open through 15 April 2023. Clean Currents will take place 10-13 October 2023 in Cincinnati, Ohio, U.S. Opportunities include classroom presentations, technology/innovation sessions, poster presentations, and workshops.

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 [Conference on Wind Energy and Wildlife \(CWW 2023\)](#) is open through 19 April 2023. CWW 2023 will take place 18-22 September 2023 in Šibenik, Croatia. Early bird registration is now available until 31 May 2023.

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.

The [Call for Abstracts](#) for the [North American Wind Energy Academy \(NAWEA\)/WindTech 2023 Conference](#) is now open through 5 May 2023. NAWEA/WindTech will take place from 30 October to 1 November 2023 in Broomfield, Colorado, U.S.

The [Call for Abstracts](#) is now open for the [Structures in the Marine Environment \(SIME\) 2023 Conference](#) until 12 May 2023. SIME will take place on 28 June 2023 in Glasgow, Scotland.

The [Call for Sessions and Town Hall Proposals](#) for [Ocean Sciences Meeting 2024](#) is now open through 24 May 2023. Ocean Sciences Meeting 2024 will take place from 18-23 February 2024 in New Orleans, Louisiana, U.S. and online.

### Calls for Papers

*Wind* is accepting submissions for several Special Issues, including “[Challenges and Perspectives of Wind Energy Technology](#)” (due 31 May 2023) and “[Wind Energy Planning by considering Social, Environmental, and Economic Issues](#)” (due 31 July 2023).

The *International Council for the Exploration of the Sea (ICES) Journal of Marine Science* has extended the submission deadline for its themed set, “[Assessing the impact of expanding offshore wind energy](#)”, to 3 July 2023.

### Funding & Testing Opportunities

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. Applications are due 19 May 2023.

The U.S. DOE's Office of Clean Energy Demonstrations recently announced \$15 million for the [Energizing Rural Communities Prize](#) to help rural communities build capacity needed for clean energy development and deployment. Submissions for the first round are due 24 May 2023.

The U.S. Ocean Energy Safety Institute (OESI) has launched a [Request for Proposals](#) focused on two target areas: small-scale marine energy solutions that enhance the safety, security, and sustainability of offshore wind and oil & gas operations; and utility-scale marine energy solutions that enhance marine energy operations. Submissions are due 19 June 2023.

### Student & Employment Opportunities

Pacific Northwest National Laboratory is seeking a [Blue Economy Specialist](#) with a strong background in the blue economy to support regional and national maritime sectors accelerate maritime innovation and sustainability. Applications are due by 29 April 2023.

The University of Caen Normandy is advertising a [Postdoctoral Position](#) focused on reviewing the impacts of offshore wind farms on marine and coastal biodiversity and social ecosystems. Applications are due 10 May 2023.

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## Upcoming Events

### Upcoming Webinars

Sandia National Laboratories is hosting a webinar for students and educators across the country to learn about water power on 24 April 2023 from 12:00-1:00pm PDT (7:00-8:00pm UTC). During the webinar, researchers will explain the benefits of water power and share their personal experiences from working in the field. Register [here](#).

The European Technology & Innovation Platform for Ocean Energy (ETIP Ocean) is hosting a [webinar](#) on 27 April 2023 at 3:00pm CEST (1:00pm UTC). During the webinar, speakers from the Tidal Stream Industry Energiser Project (TIGER) project will share guidelines for project permitting in the UK and France. Register [here](#).

The Schatz Energy Research Center is hosting a webinar, [Seabirds in 3D: a new framework for assessing collision vulnerability with floating offshore wind](#), on 27 April 2023 from 2:00-4:00pm PDT (9:00-11:00pm UTC). The webinar will discuss a 3D seabird interactions study that modeled the abundance of seabirds within rotor swept elevations and localized offshore wind generation potential. Register [here](#).

The International Energy Agency Wind Task 34, Working Together to Resolve Environmental Effects of Wind Energy ([WREN](#)), is hosting a webinar, [Influence of Offshore Wind Turbines on Marine Habitats and Ecosystems](#), on 3 May 2023 from 10:00-11:00am EDT (2:00-3:00pm UTC). The webinar will discuss the state of the science on the impacts of offshore wind turbines on the marine environment, and how researchers monitor and minimize impacts. Register [here](#).

WREN is also hosting a webinar, [Compensating the Impacts of Offshore Wind Energy on Birds](#), on 16 May 2023 from 11:00am-12:00pm EDT (3:00-4:00pm UTC). The webinar will provide an overview of the mitigation hierarchy, and discuss compensation measures from the United Kingdom and the United States. Register [here](#).

### Upcoming Workshops

The Portal and Repository for Information on Marine Renewable Energy ([PRIMRE](#)) is hosting a workshop focused on geospatial and permitting and licensing tools for U.S. marine energy projects on 18 April 2023 from 9:00-11:00am PDT (4:00-6:00pm UTC). The workshop will feature presentations on the [Marine Energy Environmental Toolkit for Permitting and Licensing](#), the [Marine Energy Atlas](#) and other geospatial data within PRIMRE, and PRIMRE capabilities to support marine energy projects. Register [here](#).

After successful Ocean Energy Systems ([OES](#)) Workshops on Marine Energy Data Sharing in 2021 and 2022, the [PRIMRE](#) team is also hosting a third online workshop on 2 May 2023 from 3:00-5:00 PM UTC. We are particularly looking for those who develop or manage marine energy databases, portals, and/or tools. Please register [here](#) by 18 April 2023 and email questions [here](#).

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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**

### **[European offshore renewable energy, towards a sustainable future](#) – Soukissian et al. 2023**

Building on the recommendations made in European Marine Board Vision Document No. 2 on Marine Renewable Energy from 2010, and at a critical juncture for the industry, Future Science Brief No. 9 provides an overview of the current offshore renewable energy technology, and the extent of European deployment to date. It discusses the environmental and socioeconomic considerations that must be considered throughout the lifetime of an offshore renewable energy system. The publication presents the key knowledge, research, and capacity gaps that must be addressed to ensure sustainable delivery of the EU Green Deal objectives. It closes with key policy, research, capacity, and data recommendations to take the sector forward.

### **[Tidal current energy harvesting technologies: A review of current status and life cycle assessment](#) – Li & Zhu 2023**

As an abundant, clean, and predictable source of renewable energy, tidal current energy provides a cost-effective alternative to fossil fuels. Tidal current energy harvesting technologies are still at their early stages of development. Even some advanced demonstration projects with full-scale tidal current energy converters (TCECs) still face considerable technical barriers, and their environmental impacts are unclear. This study presents a comprehensive overview of the state-of-the-art of tidal current energy harvesting schemes and life cycle assessment (LCA) studies of TCECs. Detailed LCA studies of TCECs are presented to indicate their energy consumption and environmental impacts.

### **[Ocean Energy](#) – Martinez et al. 2023**

Along with the development of new technologies, the impacts of MRE on the environment should be monitored, mitigated, and kept at a minimum to reduce risk-related uncertainties. At the same time, it is vital to consider the perception of these new technologies and their acceptance locally before installing the devices. This chapter examines ocean energy from different viewpoints. First, a brief description of how different ocean energy devices work is given. There follows a revision of the potential

environmental impacts these devices may have. In the third section the need to evaluate the social perception and acceptance of the new technologies regarding the possibility of installing MRE devices is highlighted. The chapter ends with a brief description of how MRE may help in the achievement of the United Nations Sustainable Development goals.

## **Wind Energy**

### **Fisheries and Offshore Wind Interactions: Synthesis of Science – Hogan et al. 2023**

Given the forecasted rapid pace and broad scope of offshore wind development (OSW) in the U.S. and globally, there is a need to synthesize current and past scientific research that has examined the interactions between OSW, fisheries, and the marine ecosystems. This Synthesis of the Science (SoS) focused on 5 topics collectively identified by the project partners as critical for consideration in relation to OSW: ecosystem effects, fisheries socioeconomics, fisheries management and data collection, methods and approaches, and regional science planning. The project consisted of 2 integrated components: a virtual workshop and this published report, which together have the overarching purpose of enhancing regional and national understanding of existing science and data gaps related to offshore wind interactions with fish and fisheries.

### **Bats and Wind Energy Cooperative 6th Science and All Committees Meeting: 2022 Workshop Proceedings – BWEC 2023**

The Bats and Wind Energy Cooperative (BWEC or Cooperative) is an alliance of experts from government agencies, private industry, academic institutions, and non-governmental organizations that cooperate to develop and disseminate solutions to measure and mitigate the impact of wind turbines on bats, while maintaining the ability to develop and operate wind energy facilities in a competitive and cost-effective manner. In 2022, the BWEC's Oversight, Science Advisory, and Technical Advisory Committees met virtually on February 7, 8, 28, March 4, and September 7 for the 6th Science and All Committees Meeting to examine progress of the BWEC toward priorities established at the 2018 meeting, discuss emerging issues, and establish research priorities for the Cooperative for the years 2023 to 2026.

### **Projected cross-shore changes in upwelling induced by offshore wind farm development along the California coast – Raghukumar et al. 2023**

In California offshore waters, sustained northwesterly winds have been identified as a key resource that can contribute substantially to renewable energy goals. However, the development of large-scale offshore wind farms can reduce the wind stress at the sea surface, which could affect wind-driven upwelling, nutrient delivery, and ecosystem dynamics. Here we examine changes to upwelling using atmospheric and ocean circulation numerical models together with a hypothetical upper bound buildout scenario of 877 turbines spread across three areas of interest. Wind speed changes are found to reduce upwelling on the inshore side of windfarms and increase upwelling on the offshore side.

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## News & Press Releases

### Marine Energy

#### [Tidal turbine testing about to start in Massachusetts](#) – Offshore Energy

After a long development process, the Marine Renewable Energy Collaborative (MRECo) will start the first full test of a tidal energy turbine at its Bourne Tidal Test Site in the Cape Cod Canal. An unnamed Massachusetts developer will test a scale model of its tidal energy turbine designed to generate power from slower waters, starting from April 12, 2023, MRECo informed. Once installed on the test stand, the turbine will operate continuously for 30 days. The Bourne Tidal Test Site is licensed by the Army Corps of Engineers, and MREC is also applying for a license from the Federal Electric Regulatory Commission (FERC) to generate power directly to the grid. The site was established in November 2017, and is suitable for testing of tidal energy components or turbines of up to three meters in diameter with maximum output of 100kW.

#### [Teaming Up for Marine Energy](#) – U.S. DOE

The United States has an abundance of marine energy resources. In fact, there is enough potential marine energy in U.S. waters to meet nearly 60% of the country's annual power demand. Even if only a small portion of that potential is captured, marine energy could play a big role in achieving U.S. net-zero-emissions goals. Yet developing and bringing new technologies to market that harness the power in waves, tides, and river and ocean currents can be a long, winding road. That's why the Testing Expertise and Access for Marine Energy Research (TEAMER) program—sponsored by the U.S. DOE WPTO and directed by the Pacific Ocean Energy Trust—brings together experts to support the development of new marine energy technologies.

#### [History in Israel: National Electric Company and Eco Wave Power Enter into Country's First-Ever Wave Energy Power Purchase Agreement](#) – Eco Wave Power

Eco Wave Power Global recently announced it has entered into an official Power Purchase Agreement with the Israeli National Electric Company, based on the official Feed-in Tariff which was set for the Company's newly-installed wave energy project at the Port of Jaffa in Tel Aviv, Israel. With the Power Purchase Agreement in place, a private examiner has successfully approved the technology's grid synchronization. Next, the Israeli Electric Company will perform its own synchronization test and then will officially connect the EWP-EDF One wave energy project to Israel's energy grid. Once connected, the EWP-EDF One Project will represent the first time in the country's history that electricity produced by the power of waves will be transmitted to Israel's national electric grid.

## **Historic wave and tidal energy legislation presented for California – Offshore Energy**

The California Senate Bill 605 for wave and tidal energy, introduced by senator Steve Padilla of Chula Vista, aims to promote and facilitate the development and growth of the marine energy industry in California. The bill, introduced by senator Padilla on February 15, 2023, calls for a comprehensive and collaborative study to evaluate the feasibility and benefits of using wave energy and tidal energy. It also requires the state's Energy Commission to develop a strategic plan for the deployment of wave and tidal energy technologies, infrastructure, and facilities. The SB 605 bill recognizes the vast benefits that marine energy provides, saying that if developed and deployed at scale, wave and tidal energy 'can provide economic and environmental benefits to the state and the nation'.

## **An Alaskan Village's Journey Back to the Future: How Igiugig Plans To Fight for Their Clean, Independent Lifestyle With an Energy Overhaul – National Renewable Energy Laboratory (NREL)**

In 2019, with funding from the U.S. DOE WPTO, Igiugig installed a tidal energy device in the river. The RivGen, built by Ocean Renewable Power Company, could generate enough energy to provide close to half the village's electricity needs. In 2021, Igiugig villagers and Ocean Renewable Power Company retrieved the first RivGen (to perform maintenance) and installed a second. But, despite tidal energy's promise, this newer renewable energy device might need additional analysis to determine how the next iteration can support all of Igiugig's needs. To help the villagers assess all their energy options, both in the short and long term, WPTO funded a collaboration between Igiugig, NREL, and Deerstone Consulting. Throughout 2021, a group of NREL researchers held virtual meetings with Igiugig community members (scheduling around salmon fishing, berry picking, and moose hunting) to evaluate their energy system.

## **Wind Energy**

### **Interior Department Announces Start of Turbine Construction for Commercial-Scale, Offshore Wind Energy Project in Federal Waters – U.S. Department of the Interior**

In a major milestone towards meeting the Biden-Harris administration's goal to deploy 30 gigawatts of offshore wind energy by 2030, the Department of the Interior recently announced that the Bureau of Safety and Environmental Enforcement (BSEE) has completed its review of critical design and installation reports for the South Fork Wind project, clearing the way for the start of turbine construction offshore Rhode Island and New York. This will be the first commercial-scale, offshore wind energy project to start turbine construction in federal waters in the United States. South Fork Wind will now begin the historic step of constructing and installing offshore wind turbines on the Outer Continental Shelf, with an estimated completion date of summer 2023.



## **The biggest offshore wind ‘living lab’ in the world to be developed in the Humber – Offshore Renewable Energy (ORE) Catapult**

The biggest offshore wind ‘living lab’ in the world will be created off the Grimsby coast through the development of a 5G Testbed that includes Grimsby Port and the Lynn and Inner Dowsing wind farm. The £2.8m project will accelerate the development of a new generation of digital technologies essential for the huge expansion of offshore wind generation required to meet climate targets. It is being driven by a consortium led by the ORE Catapult and bringing together the expertise of Microsoft, Vilicom, JET Connectivity, XceCo, Associated British Ports, Accelleran and Satellite Applications Catapult. The 5G Testbed will allow technology providers to test and demonstrate their equipment in real world conditions, with access to reliable, high-speed communications.

## **NREL, GE Research Team Find Critical Adjustments To Improve Wind Turbine Design: High-Performance Computing Reveals Low-Level Jet Vulnerabilities, Solutions – NREL**

Low-level jet streams, also known as low-level jets (LLJs), behave in powerful and complex ways that can impact numerous American lives and livelihoods. To harness this renewable energy resource, states along the Atlantic coast have pledged to deploy almost 20 gigawatts of wind energy by 2035, which will make wind a substantial source of energy for the nation’s most densely populated region. But understanding how LLJs behave can help unlock their full potential, and studying this invisible force has proved challenging for most researchers—until now. With joint support from the National Offshore Wind Research and Development Consortium and GE Offshore Wind, researchers at the General Electric Global Research Center (GE-GRC) and NREL are studying the impact of LLJ behavior along the Atlantic coast on coastal wind farm installations to find critical insights for a burgeoning U.S. wind energy economy.

## **World’s deepest offshore wind turbine foundation installed in Scottish waters – Seagreen**

The world’s deepest wind turbine foundation has been installed at what will be Scotland’s largest offshore windfarm – Seagreen – off the coast of Angus. On Friday, the foundation (or ‘jacket’) was transported to the project site on a barge operated by main contractor Seaway 7 where it was met by the *Saipem 7000* – the semisubmersible crane vessel which is used to lift each of the 2,000-tonne turbine foundations into place. The installation of the jacket means Seagreen has now topped its own record from October 2022, when a previous foundation was installed at a depth of 57.4 metres (approximately 188 feet). The deepest foundation has been installed at a depth of 58.6 metres. The significant milestone also marks the installation of the 112th jacket at the 114-wind turbine farm which is a £3bn joint venture between SSE Renewables and TotalEnergies.

## **DOE Announces Winners in First Phase of Prize to Develop Floating Offshore Wind Supply Chains – U.S DOE**

The U.S. DOE recently announced the Phase One winners of the Floating Offshore Wind ReadINess (FLOWIN) Prize, a first-of-its-kind competition to tackle the floating

offshore wind energy industry's biggest supply chains challenges. About two-thirds of the nation's offshore wind resource potential is in areas with water depths over 60 meters, where floating offshore wind turbines are more practical and cost effective than fixed-bottom turbines. The three-phase competition, which is open to floating wind platform designers, fabricators, and project site developers, aims to bridge manufacturing and logistics gaps to help meet the Biden administration's goals to reduce the cost of floating offshore wind by 70% and deploy 15 gigawatts by 2035. Each Phase One winner will receive \$100,000 cash and \$75,000 in vouchers for technical support provided by DOE national laboratories.