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[Tethys](#) is an online knowledge hub that facilitates the exchange and dissemination of information on the environmental effects of wind and marine energy. The bi-weekly *Tethys Blast* highlights new publications in the [Tethys Knowledge Base](#); relevant announcements, opportunities, and upcoming events; and news articles of international interest. [ORJIP Ocean Energy](#) has partnered with [OES-Environmental](#) to provide additional content. Email tethys@pnnl.gov to contribute!

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Announcements

Tethys Engineering Photo Library

The [Tethys Engineering Photo Library](#) now contains over 600 photos and illustrations of marine energy devices, arrays, and facilities that are available for free, third-party use with attribution! If you have any high-resolution photos or illustrations to contribute, please [contact us](#).

BOEM Seeking Comments

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking comments on the Notice of Intent to prepare a Programmatic Environmental Impact Statement for the [New York Bight](#) Lease Areas (due 15 August), two Wind Energy Areas in the [Gulf of Mexico](#) (due 19 August), the [Draft Fisheries Mitigation Guidance](#) (due 22 August 2022), and the Draft Environmental Impact Statement for a proposed wind energy project offshore [New Jersey](#) (due 23 August).

Calls for Abstracts

The Marine Alliance for Science and Technology for Scotland (MASTS) has opened the Call for Abstracts for its [12th Annual Science Meeting \(ASM\)](#) through 19 August 2022. MASTS 2022 ASM will take place 8-10 November 2022 in Glasgow, Scotland.

The American Meteorological Society (AMS) has opened the [Call for Abstracts](#) for the [103rd AMS Annual Meeting](#). Submission deadlines vary for the conferences and symposia, but most abstracts are due 24 August 2022. The event will place 8-12 January 2023 in Denver, U.S.

The [Call for Abstracts](#) for the [Floating Wind Solutions \(FWS\) Conference & Exhibition 2023](#) is now open through 2 September 2022. FWS 2023 will take place from 31 January to 1 February 2022 in Houston, U.S.

Energy Technology Partnership (ETP), an alliance of 14 Scottish universities, has opened the [Call for Abstracts](#) for the [ETP Annual Conference 2022](#) through 16 September 2022. The ETP Conference will take place on 1 November 2022 in Edinburgh, Scotland.

WindEurope has opened the [Call for Abstracts](#) for the [WindEurope Annual Event 2023](#) through 30 September 2022. The event will take place 25-27 April 2023 in Copenhagen, Denmark.

Funding & Testing Opportunities

The European Commission has launched the Innovation Fund's second [Call for Small Scale Projects](#) in renewable energy, energy-intensive industries including substitute products, energy storage, and carbon capture, use and storage. Applications are due 31 August 2022.

The U.S. Testing and Expertise for Marine Energy Research (TEAMER) program is now accepting [Request For Technical Support \(RFTS\) 8](#) applications through 14 October 2022. Developers can apply for support in numerical modeling and analysis, bench/lab or tank/flume testing, and open water activities. Visit the [TEAMER website](#) for RFTS updates.

The European Commission has launched the [LIFE Programme 2022 Calls for Project Proposals](#) for nature conservation, environmental protection, climate action, and clean energy transition projects. Application deadlines vary, but most are due between September and November 2022.

Student & Employment Opportunities

Marine Renewables Canada is looking for a [Policy and Communications Lead](#) who will be responsible for developing policy input and supporting association outreach and communications. Applications are due 19 August 2022.

Oregon State University is seeking a [Safety and Compliance Officer](#) to join the PacWave team and ensure compliance with all safety and environmental regulations and requirements through the construction and operational phases of the project. Applications are due 24 August 2022.

France Energies Marines is inviting applications for a:

- [Research Engineer](#) to help increase the Institute's skills and set up research and development projects related to characterizing offshore renewable energy sites using satellite remote sensing. Applications are due 28 August 2022.

- [PhD candidate](#) to focus on providing predictions of potential impacts of offshore windfarms under contrasted climate change and fishing pressure scenarios. Applications are due 30 August 2022.
- [Research Engineer/Post-doctorate](#) to contribute to a project that aims to standardize tools for monitoring marine megafauna at the scale of offshore windfarms. Applications are due 30 August 2022.

The Department of Terrestrial Ecology at Norwegian Institute for Nature Research (NINA) is seeking a [Research Scientist](#) to support on-going research on onshore and offshore wind energy, power lines, and their effects on the environment. Applications are due 31 August 2022.

The Rutgers University Center for Ocean Observing Leadership is inviting applications for a:

- [Research Program Coordinator I](#) to conduct data analysis, visualization, and interpretation of acoustic data collected using autonomous ocean observing platforms for several projects, including for offshore wind.
- [Research Specialist](#) to join the offshore wind research team and maintain its real-time version of the Weather Research and Forecasting model.

Upcoming Events

Upcoming Webinars

Australia's Blue Economy Cooperative Research Centre is hosting a webinar, "[Risks & Opportunities for the Blue Economy](#)", on 17 August 2022 from 3:00-5:00pm AEST (5:00-7:00am UTC). Register [here](#).

National Renewable Energy Laboratory (NREL) is hosting a webinar, "New Functionality and Water Power Technologies Office Wave Hindcast Data in the [Marine Energy Atlas](#)", on 24 August 2022 from 10:00-11:00am MDT (4:00-5:00pm UTC). Register [here](#).

NREL is also hosting a webinar, "Understanding Bat Interactions with Wind Turbines", on 30 August 2022 from 12:00-1:00pm EDT (4:00-5:00pm UTC). The webinar will introduce three projects, led by Bowman, the Electric Power Research Institute, and Stantec Consulting Services, focused on using thermal video cameras to monitor bat behavior at wind turbines. Register [here](#).

Pacific Northwest National Laboratory's [Triton Initiative](#) is hosting the seventh and final webinar in its *Triton Talks* series on 1 September 2022 from 11:00am-12:00pm PDT (6:00-7:00pm UTC). During the webinar, the Triton Team will discuss changes in habitat, marine energy sustainability, and life cycle assessments. Register [here](#). View past webinars [here](#).

The Portal and Repository for Information on Marine Renewable Energy ([PRIMRE](#)) is hosting a webinar to highlight the release of the new [Marine Energy Projects Database](#), which provides a catalog of devices, projects, and test sites around the world, on 20 September 2022 from 8:00-9:00am PDT (3:00-4:00pm UTC). Register [here](#).

OES-Environmental is hosting a webinar, “From Science to Consenting: OES-Environmental 2022 Highlights”, on 22 September 2022 from 8:00-9:00am PDT (3:00-4:00pm UTC). During the webinar, the OES-Environmental team will provide updates on [risk retirement](#), guidance documents, and outreach efforts, and will detail current focus areas for research. Register [here](#).

Upcoming Conferences

University of the Highlands and Islands and Heriot Watt University are hosting [Environmental Interactions of Marine Renewables \(EIMR 2022\)](#) on 4-6 October 2022 online. Register [here](#).

The International Network on Offshore Renewable Energy (INORE) is hosting the [2022 INORE European Symposium](#) on 11-17 October 2022 in Zarautz, Spain. [Applications](#) to attend the Symposium, free of charge, are due 22 August 2022.

New Documents on *Tethys*

Marine Energy

[Case study on the novel permitting and authorization of PacWave South, a US grid-connected wave energy test facility: Development, challenges, and insights](#) – Freeman et al. 2022

Marine energy (i.e., energy from waves, tides, currents) in the United States is a nascent industry. In 2021, Oregon State University successfully completed permitting of a wave energy test facility, called PacWave South, off the coast of Oregon, which is designed to advance wave energy research and development. This article documents the multi-year process that Oregon State University used to receive federal and state authorization for a pre-permitted commercial-scale grid-connected facility by detailing the development of the test facility, management of uncertainty and challenges, and key decisions. The PacWave South case study provides insights for the larger marine energy community as the industry advances towards commercialization.

[Characterizing Sockeye Salmon Smolt Interactions with a Hydrokinetic Turbine in the Kvichak River, Alaska](#) – Courtney et al. 2022

The development of hydrokinetic turbines has been motivated by the desire to reduce fossil fuel reliance, energy production costs, and greenhouse gas emissions. Detailed information about fish interactions with hydrokinetic turbines is limited; therefore, this study sought to characterize the interactions between a turbine (RivGen; Ocean Renewable Power Company) and Sockeye Salmon *Oncorhynchus nerka* from one of the most productive populations in the world—that in the Kvichak River, Alaska. By viewing real-time video imagery, our objectives were to quantify the number of Sockeye Salmon smolts that interacted with the turbine and to assess the behaviors/outcomes of these interactions during the species' smolt out-migration. From May 21 to June 10, 2021, a

total of 2,374 Sockeye Salmon smolts passed through the field of view of cameras placed immediately downstream of the hydrokinetic turbine.

Use of a 360-Degree Underwater Camera to Characterize Artificial Reef and Fish Aggregating Effects around Marine Energy Devices – Hemery et al. 2022

Marine energy devices must be attached to the seafloor by their foundations, pilings, or anchors, and will have other parts in the water column like the devices themselves, mooring lines, and power export cables running along the seafloor. The installation and presence of these artificial structures will create physical changes that can disrupt or create new habitats, and potentially alter the behavior of mobile organisms such as fish around a device by attracting them to these new artificial reefs and fish aggregating devices. In this study, we tested a new approach for monitoring fish activity around a marine energy device anchor: a 360-degree underwater camera to keep the target (a wave energy converter's anchor) in the field of view of the camera.

Wind Energy

Significant decline of Griffon Vulture collision mortality in wind farms during 13-year of a selective turbine stopping protocol – Ferrer et al. 2022

Avian mortality is one of the most negative impacts of wind energy. Consequently, techniques that effectively reduce avian collision rates are necessary. One of such method is the stop-turbine system, otherwise known as a Turbine Shutdown System (TSS). Here, we analyzed changes in mortality during 15 years, starting two years before the application of a selective stopping protocol (2006–2007) and after 13 years of application (2008–2020). This protocol was applied in Cadiz area (southern Spain) to 20 wind farms, totaling 269 wind turbines. The priority in the shutdown protocol was to avoid large soaring birds, mainly raptors, collisions. In total, 2903 birds and 354 bats were found to have collided with wind turbines in this 15-year period. This represents a rate of 0.830 birds/turbine/year and 0.101 bats/turbine/year.

Environmental Impact Assessment for the decommissioning of offshore wind farms – Hall et al. 2022

The rapid growth of renewable energy developments, particularly offshore wind, means that worldwide there are hundreds of artificial structures in the marine environment that will at some point require removal. Decommissioning activities can have a range of effects on the environment, which are assessed through an Environmental Impact Assessment (EIA) prior to removal. EIA provides an opportunity to explore the best environmental options for decommissioning if utilised early in the planning process during the wind farm design. EIA should be utilised as a decision-aiding tool to assess impacts and design mitigation and monitoring across the life of an asset. In this paper, potential environmental impacts, mitigation measures, and alternative actions are explored as examples of best environmental practice-based thinking at a range of scales and for multiple receptors.

[Wind farm noise shifts vocalizations of a threatened shrub-steppe passerine](#) – Gomez-Catasus et al. 2022

Wind energy has experienced a notable development during the last decades, driving new challenges for animal communities. Although bird collisions with wind turbines and spatial displacement due to disturbance have been widely described in the literature, other potential impacts remain unclear. In this study, we addressed the effect of turbine noise on the vocal behaviour of a threatened shrub-steppe passerine highly dependent on acoustic communication, the Dupont's lark *Chersophilus duponti*. Based on directional recordings of 49 calling and singing males exposed to a gradient of turbine noise level (from 15 up to 51 dBA), we tested for differences in signal diversity, redundancy, and complexity, as well as temporal and spectral characteristics of their vocalizations (particularly the characteristic whistle).

News & Press Releases

Marine Energy

[Eco Wave Power's Innovative Wave Energy Pilot is on Way to AltaSea at the Port of Los Angeles](#) – Eco Wave Power

Eco Wave Power recently announced that the energy conversion unit, formerly deployed in Gibraltar, is officially on its way to AltaSea at the Port of Los Angeles, set to arrive in September 2022. This will be the first U.S. location for Eco Wave Power's technology, which is already deployed in Israel and plans further deployments in Spain, Portugal, and other locations, completing the Company's 327.7 MW project pipeline. Eco Wave Power entered a collaboration agreement with AltaSea earlier this year and announced plans to relocate the energy conversion unit from Gibraltar to AltaSea's 35-acre campus located at the Port of Los Angeles, the nation's busiest seaport. This pilot station is part of Eco Wave Power's increased focus on bringing its pioneering wave energy technology to the United States and expanding their worldwide presence.

[CorPower completes Portugal test site preparation ahead of HiWave-5 marine installations](#) – CorPower Ocean

CorPower Ocean has completed the substation and site preparation work in Portugal ahead of marine installations for its flagship HiWave-5 Project, developing a grid connected demonstration wave farm. The site located off the coast of Aguçadoura, south of Viana do Castelo, is now ready for the export cable installation. CorPower Ocean's next generation commercial-scale C4 WEC (Wave Energy Converter) is currently being constructed in Portugal and Sweden. Working in collaboration with several utility companies, it will be used to form part of a larger four-system array. In preparation for the upcoming marine deployment, CorPower Ocean has also teamed up with international

marine energy R&D consultancy WavEC Offshore Renewables to develop a robust offshore environmental monitoring system.

[The wave power generator experts say 'proves ocean energy can work' is already powering Australian homes](#) – ABC News

For the first time in Australia's history, a wave energy converter trial has successfully generated energy from the chaotic and wild ocean waves to power homes. Sitting off the King Island coast in Bass Strait, the unit — made by Melbourne company Wave Swell Energy — has been generating power for the island's local energy grid for the past year. The team behind it said its success all came down to the unique design. The \$12 million unit was constructed in Launceston and extensively tested at the Australian Maritime College. It was towed across last year to King Island and placed in the rough waves off Grassy Harbour. Since then, the team have been tested it in a range of harsh weather conditions. The 200-kilowatt wave energy converter has no moving parts in the water and uses an oscillating water column design, which essentially mimics a natural blow hole.

[Selkie Tank Testing Takes Off with Tidal Flyer](#) – Selkie Project

The Selkie Project, funded through the European regional Development fund, Ireland & Wales Cooperation Programme, are delighted to have had their first tidal energy technology developer, Tidal Flyer, complete a funded week's tank testing at LiR, National Ocean Test facility, Ireland's primary facility for testing and development of offshore technologies, based in MaREI. Tidal Flyer were successful through an open call application for marine energy technology developers, hosted by Selkie. The Selkie funded tank testing is another example of how the Selkie Project is strategically working towards the development of a streamlined commercialisation pathway for the Marine Renewable Energy Industry. The Selkie project is a €5.2m cross-border project aiming to boost the marine energy industry in Wales and Ireland.

[Japanese firm joins off-grid tidal energy demonstration project in Singapore](#) – Offshore Energy

Japan-based NYK Group is set to examine the power generation efficiency, cost of power generation, and storage for an off-grid tidal energy demonstration project in Singapore. The tidal energy demonstration, located in an off-grid area, is being developed by Singapore-based Bluenergy Solutions. The company's bi-directional tidal turbine array deployment has the potential to produce 1GWh of energy annually and its small size is said to make it possible to be installed in most locations. "By utilizing the knowledge gained from this tidal energy demonstration project and working on the commercialization of marine renewable energy, we aim to establish a new energy value chain and achieve sustainable development and growth for the company and society," NYK stated.

Wind Energy

Governor Hochul Announces New York's Third Offshore Wind Solicitation to Accelerate Clean Energy Development – New York State

Governor Kathy Hochul recently announced the release of New York's third competitive offshore wind solicitation, seeking enough clean, renewable energy to power at least 1.5 million New York homes. The procurement, administered by the New York State Energy Research and Development Authority, includes the first phase of the nation-leading \$500 million investment in offshore wind ports, manufacturing, and supply chain infrastructure as announced in the Governor's 2022 State of the State. The announcement builds on a series of significant offshore wind developments for the State in 2022, including the groundbreaking of New York's first offshore wind project, and is a critical next step toward achieving New York's Climate Leadership and Community Protection Act (Climate Act) goal to develop 9,000 megawatts of offshore wind by 2035.

Revolutionary RecyclableBlades: Siemens Gamesa technology goes full-circle at RWE's Kaskasi offshore wind power project – Siemens Gamesa

Siemens Gamesa recently celebrated the delivery of green energy from the world's first turbine equipped with Siemens Gamesa's RecyclableBlades. The first commercial installation of recyclable wind turbine technology recently took place at RWE's Kaskasi offshore wind power project in Germany. It marks a turning point in the long-term sustainability of offshore wind power. Wind turbine blades are made up of a combination of materials embedded in resin to form a strong, stiff structure. Utilizing Siemens Gamesa's market-leading RecyclableBlade technology enables full reclaim of the blade's components at the end of the product's lifespan. Separating the resin, fiberglass, and wood, among others, is achieved through using a mild acid solution. The materials can then go into the circular economy, creating new products like suitcases or flat-screen casings without the need to call on more raw resources.

First Greek Offshore Wind Law seeks 2 GW by 2030 – WindEurope

Last week the Greek Parliament approved Greece's first Offshore Wind Law, a key milestone to kick-off offshore wind development. In the coming months the Greek Government will adopt several decrees specifying future offshore wind zones and auction criteria. By 2030 Greece wants to build at least 2 GW of offshore wind. Given the characteristics of Greek waters, much of it will be floating offshore wind farms. Greece has 4.5 GW of wind energy installed today, all onshore, covering more than 18% of its electricity demand. But the potential for wind energy in Greece is much bigger, especially for offshore wind. Greece's National Energy and Climate Plan (NECP) envisages a total of 7 GW of wind energy by 2030. This target will be increased with the NECP revision in 2023.

Funding for research on coastal and offshore wind energy and wildlife – NINA

The Norwegian Institute of Nature Research (NINA) is involved in two new research projects that will investigate the consequences of large-scale development of wind energy along the coast and offshore. NINA has succeeded in securing funding from the Research Council of Norway for a collaborative project to specifically address the challenges relating to bird migration and offshore and coastal wind energy development. The Institute for Marine Research has, in collaboration with among others NINA, also succeeded in securing funding from the Research Council of Norway for a collaborative project to understand the impact of floating wind farms on marine life and co-existence with the fisheries industry. The project will produce state-of-art knowledge on ecosystem effects as well as design robust and cost-effective monitoring methods.

California Governor Calls For 20 GW of Offshore Wind by 2045 – Offshore Wind

California Governor Gavin Newsom has called for the increase of the state's offshore wind target to at least 20 GW by 2045 as part of an action plan that aims to accelerate the energy transition. In a letter to the Chair of the California Air Resources Board, Governor Newsom called for the state to ensure that the 2022 Climate Change Scoping Plan provides a path to achieve both the 2030 climate goal and state carbon neutrality no later than 2045. The current targets are for up to 15 GW of installed capacity by 2045 and 20 GW by 2050. According to the governor, the new goal has to be established through the California Energy Commission as one of the measures to address climate change. The letter, which was sent on Friday, 22 July, requested that the final plan incorporate new efforts to advance offshore wind, clean fuels, climate-friendly homes, carbon removal, and addressing methane leaks.