MAINE AUDUBON

Committee on Energy, Utilities and Technology
% Legislative Information Office
100 State House Station
Augusta, ME 04333

May 17, 2023

RE: LD 1895, An Act Regarding the Procurement of Energy from Offshore Wind Resources

Dear Senator Lawrence, Representative Zeigler, and Members of the Committee

Thank you for the opportunity to submit testimony in support of the sponsor's amendment to LD 1895, An Act Regarding the Procurement of Energy from Offshore Wind Resources, on behalf of Maine Audubon and our 30,000 members, supporters, and volunteers

Maine Audubon is a strong supporter of offshore wind development in the Gulf of Maine We support this bill because it is Maine's opportunity to secure environmental standards and minimize impacts to wildlife and the marine environment while also securing the climate and clean energy benefits of offshore wind

Our organization is confident that offshore wind development can co-exist with Gulf of Maine wildlife and the marine habitats they rely on Our confidence is based on 30 years of offshore wind development – with its real-world lessons and associated best practices – in Europe A recent study of seabird behavior over a period of two years at the Aberdeen Offshore Wind Farm off the east coast of Scotland, combining radar data with cameras, did not find a single collision with seabirds Moreover, developers have indicated to the Bureau of Ocean Energy Management (BOEM) that they do not desire to locate projects closer than 20 miles from the coast of Maine – i e , outside of areas that are most frequently used by migratory birds and foraging seabirds

Though we're confident that appropriately-sited and operated floating offshore wind development poses a low risk to Gulf wildlife, Maine Audubon remains diligent A great deal more needs to be understood about how wildlife and *floating* offshore wind development *in the Gulf of Maine* can co-exist LD 1895 helps to facilitate that learning, while setting Maine-based environmental standards Specifically, the bill

- **Requires that winning bids pay $10,000 per megawatt of the project's nameplate capacity to support research on and monitoring of the interaction between offshore**

wind development and wildlife, fisheries, and the marine environment. This amount is on par with regulation in New York and New Jersey

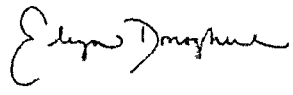
- **Funding would flow to the Maine Offshore Wind Research Consortium.** The "Consortium" is an existing entity composed of Maine-based fisheries and natural resource stakeholders, tasked with establishing a research strategy to identify opportunities and challenges caused by the deployment of floating offshore wind projects

- **Requires that all bids include a mitigation plan for impacts on wildlife, fisheries, and the environment.** Plans must include a detailed description of management practices, based on best available science, that will be employed to avoid, minimize, and mitigate impacts to threatened and endangered species, commercial fisheries, coastal ecosystems, and more

- **Favors projects that go above beyond the required mitigation plans and funding requirements.** Projects that support monitoring of environmental impacts, further contribute to research efforts, and take additional steps to minimize environmental impacts will be favored by the Public Utilities Commission

I have included with my testimony an article written by Maine Audubon biologists on what is known about offshore wind development and wildlife, as well as strategies to support co-existence Among the strategies described in the article is utilizing state policy opportunities to affect better outcomes for wildlife and wind LD 1895 is such an opportunity We urge the Committee to support this important bill

Sincerely,



Eliza Donoghue, Esq
Director of Advocacy

What We Must Do

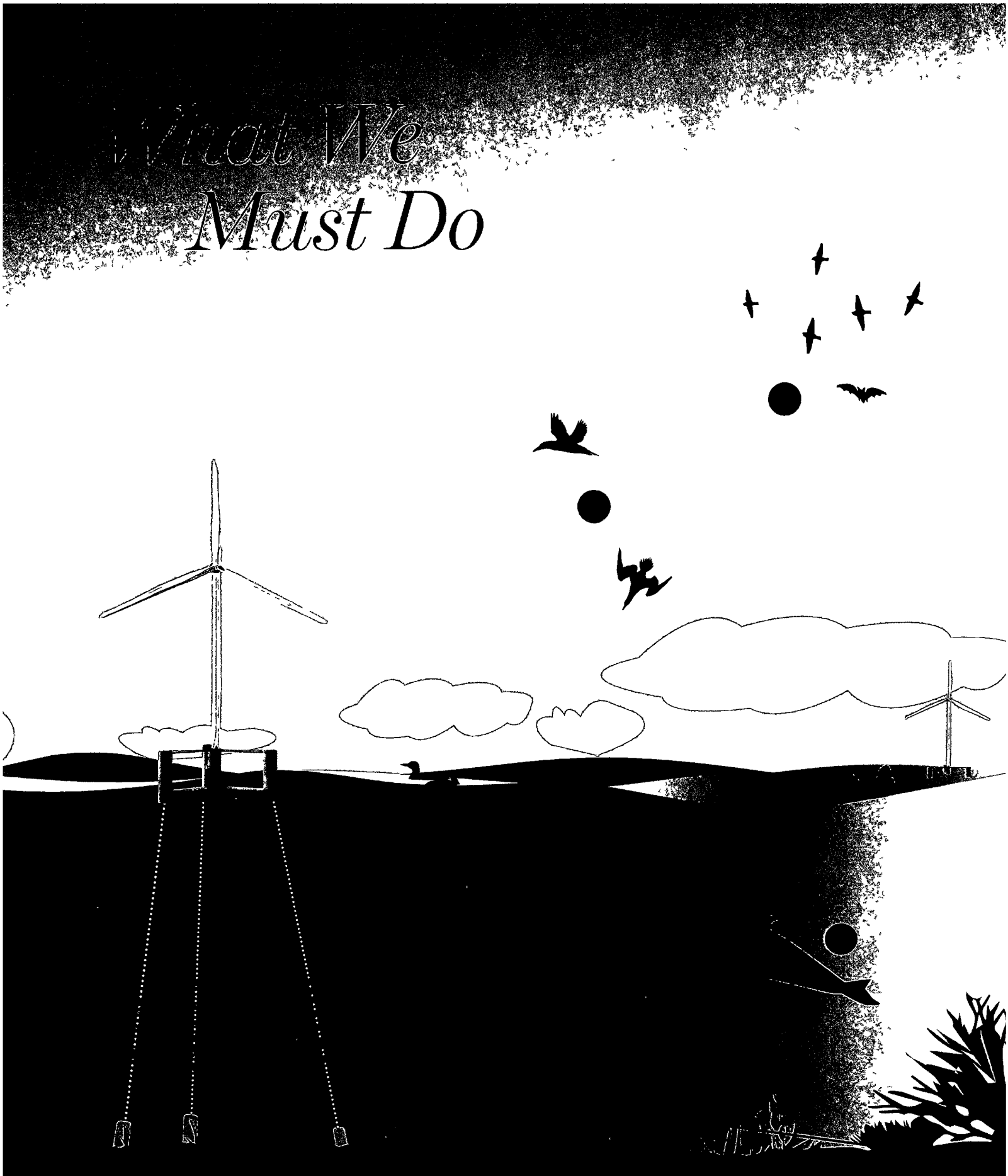


Illustration for representational purposes only; not to scale.

The Gulf of Maine is a haven for seabirds in all seasons Thousands of individuals nest on near-shore islands in the Gulf during the summer, and hunt for fish and other foods throughout the Gulf Dozens of seabird species move through the Gulf of Maine area during migration seasons as well

SEABIRDS

THE SCIENCE SO FAR Fixed-bottom wind farms in Europe's North Sea help us understand a variety of effects, seabirds may be displaced by the arrays and move into new areas, or change their movements to avoid turbines, they may collide with turbines or blades, or they may be attracted to new sources of food or roosting opportunities at turbines *(Vanerman et al 2015)* Birds of different species and ages react differently In Europe, studies indicate that loons and gannets showed varying levels of displacement, many species, including shearwaters, alcids, and terns, showed inconsistent displacement, and cormorants and gulls showed attraction *(Dierschke et al 2016)* In the Gulf of Maine, studies indicate that most breeding seabird species typically forage within 30 miles of their colonies, but spread throughout the Gulf in other seasons *(Welch 2022)* Research suggests cormorants and alcids may be sensitive to underwater construction noise *(Hansen 2020, Johansen 2016)*

WHAT WE DON'T KNOW How every species in the Gulf will react to turbines, exactly where seabirds are when they're away from their breeding islands, especially during migration, and to what extent the lessons from Europe are transferable to the Gulf of Maine

Several species of whales, porpoise, seal, and other marine mammals live in the Gulf of Maine, including the critically endangered Northern Right Whale

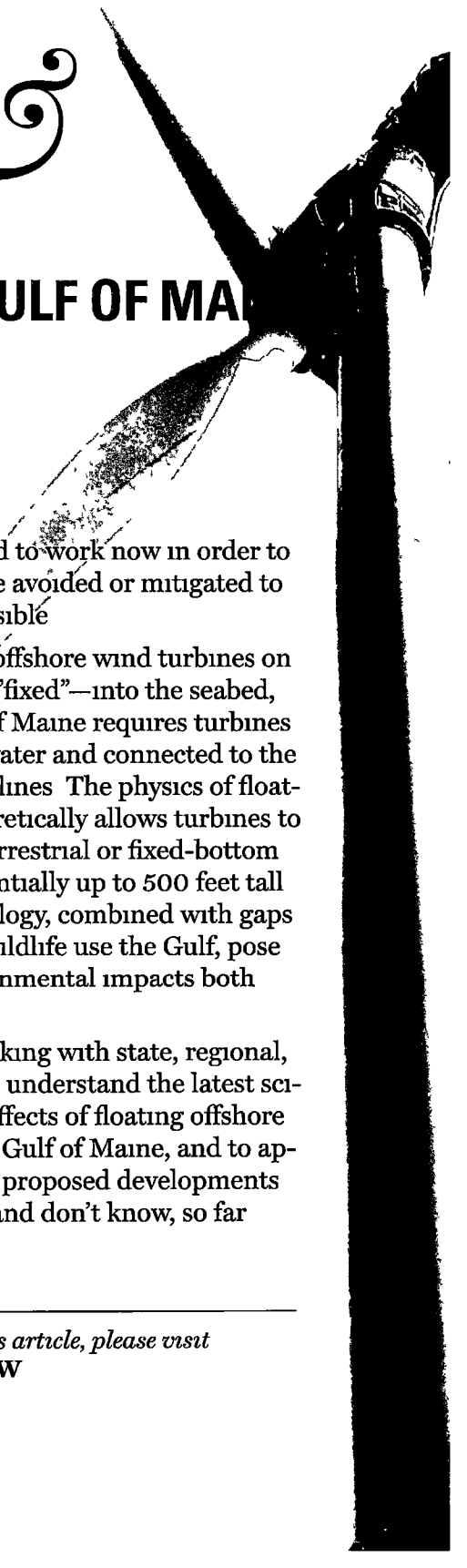
WHALES & MARINE MAMMALS

THE SCIENCE SO FAR Marine mammals can detect and respond to electromagnetic fields, but there is no evidence of negative impact *(Copping et al 2016)* Marine mammals are sensitive to underwater noise, and some species have displayed altered behavior during the construction of fixed-bottom turbines *(Brandt et al 2011)* However, underwater construction noise associated with floating turbines is expected to be significantly less than fixed-bottom turbines *(Amaral et al 2020)* Whales are not threatened by underwater cables securing floating turbines, as the cables are too large and taut to cause entanglement, but there is a potential risk for secondary entanglements *(SEER, Winter 2022)* Secondary entanglements are where marine debris, such as lost fishing gear, becomes caught on the cables and marine mammals or other species become entangled in the debris

WHAT WE DON'T KNOW Exactly where in the Gulf marine mammals are in all seasons, and how they use the habitat, the effects of underwater noise on each species of cetacean and seals, and how the impact may vary between construction and operation phases, how new vessel traffic patterns may impact marine mammals, and what effect, if any, electromagnetic fields associated with floating offshore wind arrays have on marine mammals

MAINE AUDUBON

Offshore Wind & Wildlife IN THE GULF OF MA



WHAT WE KNOW (AND DON'T KNOW)

More than a century of burning fossil fuels has altered the chemical composition of our atmosphere, changing the climate we are accustomed to and throwing the natural world out of balance Mainers are seeing these changes firsthand, as evidenced by a scientifically-measured +3 degree (F) warming trend in the state since 1895, a growing season which has lengthened by about 16 days since 1950, and a Gulf of Maine that is warming faster than 99% of the world's oceans

As Maine and the nation look for alternatives to fossil fuels, all renewable energy sources are being explored The potential for offshore wind energy development in the Gulf of Maine, especially using floating technology, is far greater than any other renewable energy source, with the potential to produce an estimated 156 gigawatts of energy per year—more than 70 times the amount of electricity used by the entire state of Maine

The opportunity to produce such a large amount of clean, renewable energy locally cannot be ignored, but we must also understand the potential impacts of this new development to wildlife and marine habitats in the region The Biden Administration has prioritized offshore wind development to help meet the nation's renewable energy goals, meaning we need to work now in order to ensure that impacts are avoided or mitigated to the greatest extent possible

While nearly all other offshore wind turbines on earth are hammered—"fixed"—into the seabed, the depth of the Gulf of Maine requires turbines to be floated into the water and connected to the seabed by long anchor lines The physics of floating offshore wind theoretically allows turbines to be much larger than terrestrial or fixed-bottom offshore turbines, potentially up to 500 feet tall The developing technology, combined with gaps in knowledge of how wildlife use the Gulf, pose questions about environmental impacts both above and below water

Maine Audubon is working with state, regional, and federal partners to understand the latest science on the potential effects of floating offshore wind on wildlife in the Gulf of Maine, and to apply this information to proposed developments Here's what we know, and don't know, so far

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For references cited in this article, please visit **maineaudubon.org/OSW**

Above Water

Millions of migratory birds—warblers, vireos, tanagers, ducks, shorebirds, raptors, and more—along with three bat species, pass over and around the Gulf of Maine every year between breeding grounds in the north and wintering grounds farther south

MIGRATORY BIRDS & BATS

THE SCIENCE SO FAR Though there is much variation by species and in different weather conditions, overall mean flight altitudes for migrating birds is typically well above projected height of the turbine blades *(Dokter 2021)* Research also shows that most migrants tend to concentrate inland and along the coast rather than over the Gulf Migratory bats are also known to migrate across the Gulf, most often in fall and in calm conditions *(Peterson 2016)* Factors such as lighting, wind turbine characteristics, turbine spacing, and proximity to high-use areas may affect the likelihood of attraction or avoidance of turbines *(SEER, Summer 2022)*

WHAT WE DON'T KNOW The exact migratory paths or heights of all the species moving over the Gulf, or what atmospheric conditions may bring them down closer to turbines

Below Water

Maine is famous for its fisheries, which are the backbone of our coastal economy and also an important food source for wildlife

FISH & LOBSTER

THE SCIENCE SO FAR Studies have shown that electromagnetic field effects from undersea cables have little or no impact on fish *(Kimley et al 2017; Dunlop et al 2016)*, or on American Lobster *(Hutchison et al 2018)* A seven-year study of the fixed-bottom Block Island Wind Farm in Rhode Island found either no impact from turbines or a positive effect on fish schooling around turbine structures *(Wilbur et al 2022)* In 2021, the state of Maine enacted a ban on offshore wind development in state waters—three nautical miles offshore—where approximately 75 percent of lobster fishing occurs Offshore wind areas may act as de facto marine protected areas, creating refuges for some marine species, increasing local species abundances and/or acting as an attractant, and generating spillover effects to increase populations in adjacent areas *(Wilhelmsson and Langhamer, 2014)*

WHAT WE DON'T KNOW. How fish populations in deeper water may be impacted by the presence of turbines, and how fish will interact with deepwater cable anchors yet to be designed.

MIGRATORY BIRDS AND BATS

- ✔ **Continue to improve our understanding of trans-Gulf bird and bat migration** and the factors that contribute to the risk of collision, including with the use of state-of-the-art collision detection technology
- ✔ **Incorporate new information and technologies** related to harm reduction into existing and future wind arrays
- ✔ **Mitigate collision risk** as much as possible by reducing lighting and other measures
- ✔ **Compensate for impacts to migratory birds and bats** that cannot be reasonably avoided or adequately minimized

SEABIRDS

- ✔ **Get better spatial data for where, when, and how seabirds use the Gulf** A federally-funded aerial survey to begin in the winter of 2022-23 will help fill these knowledge gaps
- ✔ **Ensure turbines are sited to the extent possible away from breeding, feeding, and migratory areas** used by Gulf seabirds
- ✔ **Research, develop, and eventually require state-of-the-art mitigation** to reduce collision threat
- ✔ **Compensate for impacts to seabirds** that cannot be reasonably avoided or adequately minimized

WHALES AND OTHER MARINE MAMMALS

- ✔ **Continue to study how marine mammals use the Gulf of Maine**
- ✔ **Limit the acoustic impacts of offshore wind** to the extent possible, and **avoid construction during breeding and calving seasons**
- ✔ **Continue to study the potential impacts of electromagnetic fields** on Gulf marine mammals
- ✔ **Identify methods for underwater cables to be regularly cleaned** of debris to prevent secondary entanglement
- ✔ **Consider other mitigation measures,** including vessel speed restrictions
- ✔ **Compensate for impacts to marine mammals** that cannot be reasonably avoided or adequately minimized

FISH AND LOBSTER

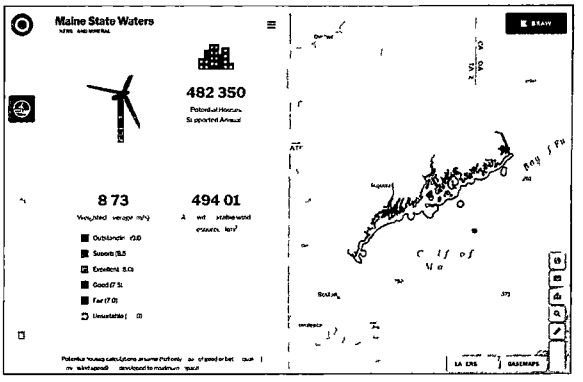
- ✔ **Require monitoring of the impacts of turbine anchors and cables** on deepwater fish populations
- ✔ **Work with the fishing industry** to understand and mitigate its concerns
- ✔ **Compensate for impacts to fisheries** that cannot be reasonably avoided or adequately minimized

ADVOCATING FOR *Offshore Wind & Wildlife*

Maine Audubon is committed to advocating for wildlife as Maine and the U S pursue a clean energy future We are active on a number of fronts and involved in key processes that will determine where and how floating offshore wind may occur in the Gulf, including

SUPPORTING THE PROPOSED GULF OF MAINE FLOATING OFFSHORE WIND RESEARCH ARRAY The State of Maine is pursuing the development of an up to 12 turbine research array in federal waters off Maine's coast Information from this array will allow the state, the fishing industry, wildlife advocates, and other stakeholders to better understand the potential impacts of floating offshore wind in the Gulf of Maine This information will be used to responsibly site and operate future commercial offshore wind projects in the Gulf

ENGAGING IN BUREAU OF OCEAN ENERGY MANAGEMENT (BOEM) DECISION MAKING
BOEM is the federal agency that facilitates offshore wind development on the Outer Continental Shelf, including granting leases to wind developers Locating lease areas in places that avoid areas that are critical to wildlife is the leading mitigation strategy Maine Audubon has worked for years to encourage BOEM to continue study of wildlife impacts in the Gulf Most recently we worked with state and national partners to advise BOEM on locations to avoid in the Gulf of Maine, as well as other strategies to minimize impacts to wildlife



UTILIZING STATE POLICY LEVERS The State of Maine can play a key role in guiding offshore wind development in the Gulf, if the right policies are in place and resources are brought to bear Maine Audubon is advocating for the use of power purchase agreements, for example, to guide best development practices, as well as establishing compensation mechanisms to account for unavoidable impacts Maine also needs to continue to commit state resources—both money and people-power—to best understand the impact of offshore wind on wildlife

Maine has a unique opportunity to lead in developing well-sited and operated floating offshore wind with the least impact to wildlife and the environment This opportunity will only be realized with robust advocacy

For an online interactive version of this article and for full references cited above, please visit **maineaudubon org/OSW**