MAINE AUDUBON

Bureau of Ocean Energy Management
Office of Renewable Energy Programs
45600 Woodland Road
Sterling, VA 20166

June 12, 2023

Re: BOEM-2023-0025 – Call for Information: Commercial Leasing for Wind Power Development on the Gulf of Maine Outer Continental Shelf

To Whom It May Concern:

Thank you for the opportunity to provide comments on the call for information on possible commercial wind energy leasing on the Gulf of Maine Outer Continental Shelf (OCS), on behalf of Maine Audubon, Maine Conservation Voters, Mass Audubon, National Audubon Society, and the Natural Resources Council of Maine. The Gulf of Maine is a unique ecological system and it is warming faster than 97% of the world's ocean surfaces due to climatic changes resulting from the combustion of fossil fuels for energy. It is fitting that the Gulf of Maine could play a significant role in reducing the generation of additional greenhouse gases that threaten the Gulf by being a source of renewable energy in the form of offshore wind. However, offshore wind development in the Gulf of Maine must be developed responsibility in order to protect the Gulf's unique ecological system, which contains a multitude of interconnected species and habitats that may be vulnerable to impacts from such development.

Responsible offshore wind energy resource development: (i) avoids, minimizes, mitigates, and monitors for adverse impacts on wildlife and habitats, (ii) minimizes negative impacts on other ocean uses, (iii) includes robust consultation with Native American tribes and communities, (iv) meaningfully engages state and local governments and stakeholders from the outset, (v) includes comprehensive efforts to avoid impacts to underserved communities, and (vi) uses the best available scientific and technological data to ensure science-based and stakeholder-informed decision making. The Gulf of Maine has rich and diverse ecosystems, and offshore wind development must include measures to ensure protection of the region's natural resources, including Nationally Significant Populations of seabirds, bats, commercial and non-commercial fish species, marine mammals (including one of the world's most endangered whales), and migrating, foraging, breeding, and staging songbirds, shorebirds, and seabirds.

In the Federal Register Notice, BOEM requested specific information from interested or affected parties regarding specific features, activities, mitigations, or concerns within or around

the Call Area. Our comments regarding those specific items will be restricted to those within our areas or expertise. Specifically:

- **BOEM AND NCCOS Suitability Monitoring**: Maine Audubon and collaborators support the use of the best available science for spatial suitability modeling. This may include aggregate habitat modeling based on multiple species within a specific group (i.e. seabirds, or shorebirds) and "hot spot" methodology to identify areas that are less suitable for wind projects where bird habitat suitability is high or areas that are highly suitable for wind projects where bird habitat suitability is low. We support the use of modeling efforts similar to what was done for marine birds in the Gulf of Mexico and we are encouraged by the outcome of that effort.

  However, not all datasets fit well into these standard models, and additional effort should be made to incorporate the information in these datasets, and to gather additional datasets where data are currently lacking. For example, we understand there are a number of bird tracking datasets the are information rich, but that don't fit as neatly into the existing analysis. Accommodations should be made to incorporate the information into the analysis.

  Likewise, there is a serious lack of data depicting utilization of habitats within the Gulf of Maine by bats. Very little is known about which bats are using the offshore environment, when and where they are in the Gulf of Maine, what they are doing there, and what impact the presence of offshore wind turbines will have on their behavior and their populations.

  Similarly, little is known about the movement patterns of diadromous fish once they leave freshwater rivers and brackish estuaries for the ocean. Some of these species, such as salmon, eels, and sturgeon may be particularly sensitive to the electromagnetic fields (EMF) associated with high voltage electrical cables that will be bringing the clean offshore wind energy to shore.

  With regard to data to inform suitability modeling for transmission, we recommend that BOEM collect additional data to identify transmission routes with the least impact on the environment. These datasets may include benthic data to help identify soft, less complex habitat areas where impacts to species would be less. Additionally, locations of diadromous fish migration routes between fresh and tidal system should be identified, because some of these species are particularly susceptible to the influence of EMF. Finally, important feeding areas for shorebirds and seabirds will need to be identified in order to reduce potential disruption to both the food source and the feeding behaviors.

- **Call Area: Areas Requiring Further Analysis:** We appreciate that BOEM is interested in addressing the concerns raised by the public and by partner agencies regarding areas within

or associated with the Call Area as mapped. Many of these concerns can be addressed by adjusting the areas under consideration for Wind Energy Areas (WEAs), some can be addressed with the collection of additional data, and some can be addressed through appropriate construction, operation, and mitigation of the offshore wind projects. We will comment on the specific areas that fall within our areas of expertise, leaving other topics for those subject area experts.

- Atlantic Large Whale Take Reduction Plan Restricted Areas. These areas have been identified through years of research and they represent the areas within the Gulf of Maine that provide important seasonal habitat for North Atlantic right whales, humpback, and fin whales. Considering the Unusual Mortality Event that these species are currently experiencing, and considering the potential for the presence of floating offshore wind energy projects to negatively impact these species, we recommend constraining these areas in the model and considering them less suitable for offshore wind development.

- Platts Bank. Based on an analysis by the Biodiversity Research Institute[1] (Figure 1), Platts Bank and other areas showing topographic complexity appear to be important to a number of bird species in the Gulf of Maine. Platts Bank and other complex areas show up as areas with high habitat use for a number of species. We recommend identifying this as an area of low suitability for offshore wind.

- Georges Bank. While the bank itself has been removed from the Call Area, BOEM recognizes that the boundary between the Gulf of Maine and Georges Bank is a sensitive habitat area for both physical and biological reasons. The upwelling that occurs in this area and other physical factors make this a rich area for fish species, which in turn, makes it an important region for fish-feeding birds. We recommend identifying this as an area of low suitability for offshore wind and potentially expanding it beyond the 10 km buffer further to the east. See Figure 1.

- **Potentially Conflicting Uses of the Call Area**: We appreciate that BOEM recognizes that there are additional areas of interest and potential conflict within the Call Area that should be re-evaluated for their inclusion or removal from consideration for potential Wind Energy Areas.

    - Habitat areas that may require special attention during siting and construction. Many of the islands off the coast of Maine provide ideal nesting habitat for a number of

[1] Stepanuk, J.; Adams, E.; Dodgin, S.; Gilbert, A.; Goodale, W.; Jenkins, E. 2022. Supporting offshore wind siting in the Gulf of Maine – Marine birds. Report to the Maine Department of Inland Fisheries and Wildlife. Biodiversity Research Institute, Portland, ME. 52 pp.

seabirds and shorebirds during the breeding and nesting seasons. Some of these species nest colonially, like terns and gulls, and all of them use their nesting grounds as a home base during the nesting season. The adults forage in the adjacent waters, bringing home their catch to their partners and young. Many of these species fly several dozen miles on these foraging trips, making the areas adjacent to these nesting islands particularly sensitive to the presence of wind turbines, given the potential risk of collision and/or displacement wind turbines pose to birds. Data collected by the U.S. Fish and Wildlife Service and others can be mapped to create a compelling visual example of the importance of the area around the islands off the coast of Maine.[2] An analysis of the importance of foraging regions for fourteen nesting marine bird species in the Gulf of Maine, conducted by Biodiversity Research Institute, indicates major foraging habitat focused on Midcoast Maine, far Downeast Maine, and Cape Cod, and that this habitat was primarily within 40 miles of the coast.[3] See Figure 2. Recent data collected during the 2022 breeding season shows the importance of the area immediately around Atlantic puffin and tern nesting islands for foraging activities. See Figures 3 and 4. In addition, these islands are often used by a wide variety of migrating bird species as staging areas, mid-migration foraging sites, and critically important sheltering and resting areas during inclement weather in the migration season. We recommend the area within 24 nm of land, including islands, be identified as less suitable for offshore wind development in the suitability models used to identify Wind Energy Areas.

Additionally, construction activities should avoid the active seasons for the most vulnerable wildlife such that noise and vessel traffic is lowest during breeding and migration seasons for birds and marine mammals, for example. Similarly, when transmission infrastructure comes to shore, it should avoid the shorebird nesting season and avoid the highest quality nesting areas for shorebirds. Estuaries important for diadromous fish species such as American eels, Atlantic salmon, and sturgeon should be avoided where possible as sites for transmission areas, as some of these species are particularly sensitive to the EMF associated with the cables.

- Areas that are of particular importance to protected species, as well as recommendations on how to treat any anticipated redistribution of these species (and their habitats and prey) as a result of climate change. We continue to recommend the

[2] For example, see Linda Welch, Maine Coastal Islands National Wildlife Refuge/Amanda Cross, Ecological Services – Maine Field Office, Presentation: U.S. Fish and Wildlife Service Trust Resources and Responsibilities, Intergovernmental Renewable Energy Task Force Meeting for the Gulf of Maine (May 19, 2022): https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/USFWS-Presentation.pdf

[3] Stepanuk, J.; Adams, E.; Dodgin, S.; Gilbert, A.; Goodale, W.; Jenkins, E. 2022. Supporting offshore wind siting in the Gulf of Maine – Marine birds. Report to the Maine Department of Inland Fisheries and Wildlife. Biodiversity Research Institute, Portland, ME. 52 pp.

area within 24 nm of the coast and islands be identified as less suitable for offshore wind development in the suitability models used to identify Wind Energy Areas. Some of the species noted in the previous comment may be listed under the federal or state Endangered Species Act. However, while many of the migrating birds using the coast and islands are not included on federal or state endangered species lists, they are protected under the Migratory Bird Treaty Act, and would benefit from locating turbines away from the coastline and islands.

- Information on the constraints and advantages of possible electrical cable transmission routes, including onshore landing and interconnection points for cables connecting offshore wind energy facilities to the onshore electrical grid. We strongly recommend that BOEM take a holistic approach to cable routes and consolidate the cables in predetermined routes, such as through a backbone transmission system. This will reduce the amount of disruption to the seabed benthic habitats during construction and could be more efficient in the use of space and materials. Such a system should avoid complex topography and other sensitive areas of habitat. We recommend making landfall in previously developed areas and to avoid particularly sensitive habitats such as shorebird habitat. Timing restrictions may be appropriate as well, to avoid disturbance of nesting seabirds or migrating and feeding marine mammals. Use of directional drilling may be preferred to avoid specific sensitive areas that cannot otherwise be avoided.

- Information regarding the size and number of WEAs. Because floating offshore wind arrays have the potential to have a larger footprint than an array of fixed bottom turbines would, we recommend spacing out the arrays (if possible, given other siting constraints) such that wildlife travel corridors can be created and maintained through which wildlife can pass without going through the array or having to travel too far around the array. These corridors could also serve as vessel travel corridors, but if this is done, vessel speeds must be restricted in order to minimize potential harm to marine mammals and sea turtles.

- Floating offshore wind. Floating offshore wind is a new technology in the world, so determining the best types of structures to use is more difficult, as the industry standards are still being developed. We recommend anchors with the least amount of drag that would disrupt benthic habitats, and cabling that would allow for the smallest footprint in order to reduce the size of the impact to underwater wildlife. The cables used should have a system for identifying and removing when ocean debris, such as fishing gear, becomes hung up on the cables. This debris can become a secondary entanglement risk to marine mammals, sea turtles, and fish. Inter-array cables should be on the seafloor rather than within the water column to avoid additional potential

for secondary entanglement. Where appropriate and where determined to be effective, color and pattern can be used with cables and towers and blades to increase visibility to reduce collision risk. Other monitoring devices to aid in wildlife collision prevention and to detect and monitor displacement and other effects of the turbines should be incorporated into the design of the turbines from the start, rather than as an add-on at the end.

- Feedback on possible offshore wind farm configurations. Because wind farms offer risks of both collision and displacement, we recommend providing a path through the array so wildlife can safely travel through the array rather than going around. How large and frequent those passages should be is one topic that could be examined in Maine's research array. However, corridors may be utilized by both wildlife and vessels, so vessel speed limitations should be strictly enforced in these passages to reduce the potential for vessel strikes on wildlife.

Other Considerations

Wind energy development in the Gulf of Maine will require technology that is new in American waters and that has only limited development worldwide: floating wind platforms. Floating offshore wind is an important technology to meet Maine's ambitious clean energy goals, as well as the Biden Administration's goals of deploying 30 gigawatts (GW) of clean offshore wind energy by 2030 and an additional 15 GW of floating offshore wind by 2035. Careful consideration of the unique impacts of this new technology is warranted as BOEM and Maine work towards meeting these renewable energy goals with the least environmental impact.

Extensive monitoring and adaptive management is integral to offshore wind development in the Gulf of Maine to ensure that potential impacts are understood and properly mitigated. Results from Maine's proposed research array must be incorporated into subsequent commercial wind energy projects. BOEM's ambitious commercial leasing timeline does not allow for much time for results from the research array to be collected prior to implementation of commercial wind projects. Therefore, we request that BOEM require that methodologies for environmental impact reduction developed at the research array be incorporated into commercial arrays, even after the traditional window for such requirements, where applicable. This may be as simple as incorporating curtailment strategies or mounting monitoring equipment on turbines or platforms after a project has been deployed. Commercial entities should be aware of such expectations at the start.

Finally, we ask that you consider potential cumulative impacts to migratory and other wildlife species in the siting, number, and configuration of the Wind Energy Areas. Many of the species that use the Gulf of Maine -- including birds, bats, marine mammals, and fish species --

are highly mobile, and many utilize areas outside the Gulf of Maine for migration and other movements. BOEM has embarked on an ambitious effort to facilitate the development of offshore wind energy projects along the Atlantic coast of the U.S. where many of these species travel and forage. The impacts of a series of wind energy projects along the eastern seaboard will not be isolated within each Call Area. BOEM has the opportunity and responsibility to consider existing and potential Wind Energy Areas and offshore wind lease areas with each new area proposed for development. Siting of previously identified lease areas should be taken into consideration with the siting of each subsequent lease area and compared to known or suspected marine wildlife migration routes in order to analyze, disclose and minimize cumulative impacts on migratory species.

Thank you again for your efforts to balance our nation's offshore wind energy goals with the Gulf of Maine's many, diverse, and unique natural resource values. We welcome a continued dialogue, including any questions.

Sincerely,

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Figure 1

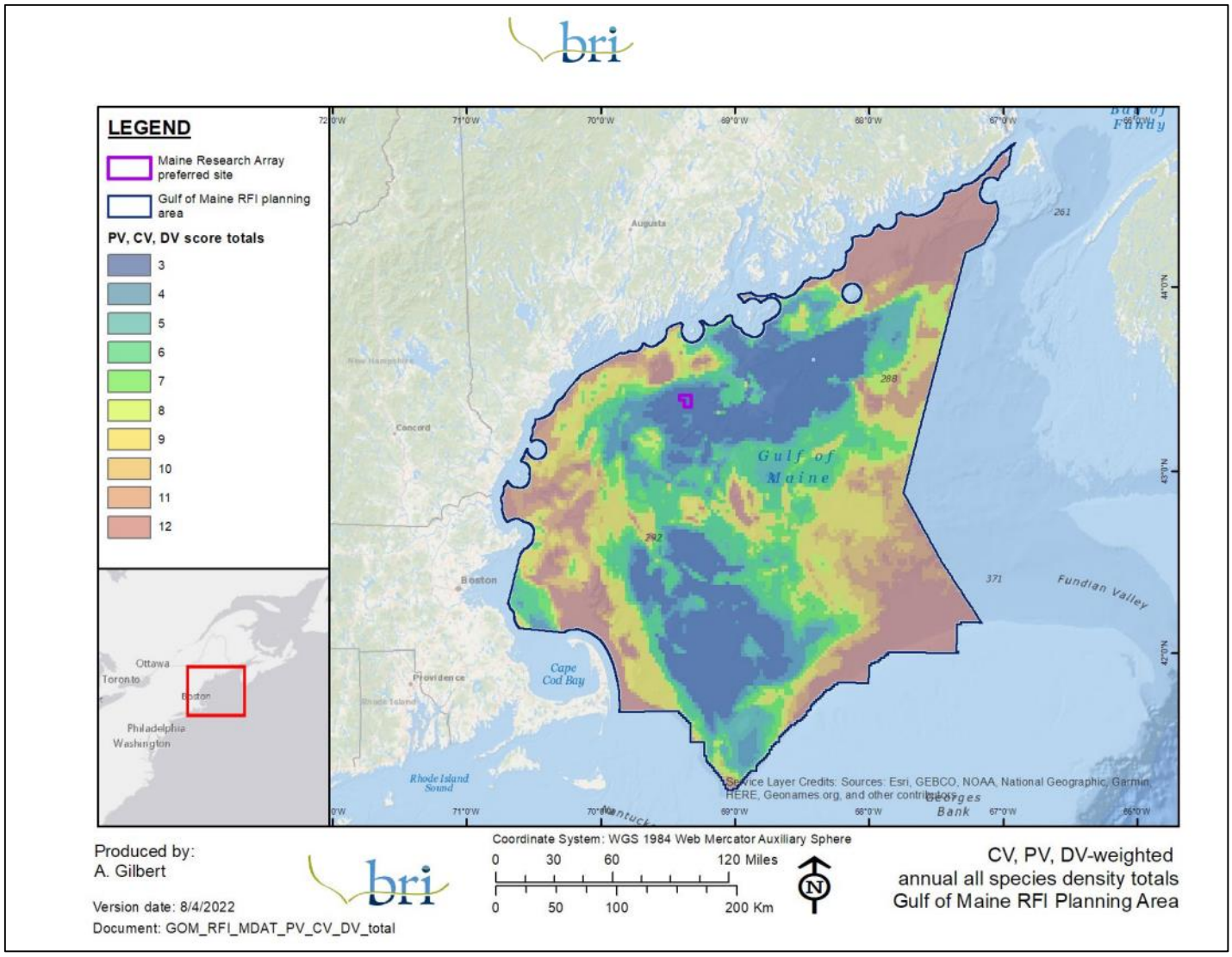

Figure 1. Weighted density analysis of population vulnerability (PV), displacement vulnerability (DV), and collision vulnerability (CV) for all marine bird species built using MDAT models. Species included any species that inhabits the GOM region, including both species that nest and species that do not nest in this region. Areas in blue indicate lower species density of vulnerable species, and areas in red indicate higher species density of vulnerable species.

Figure 2

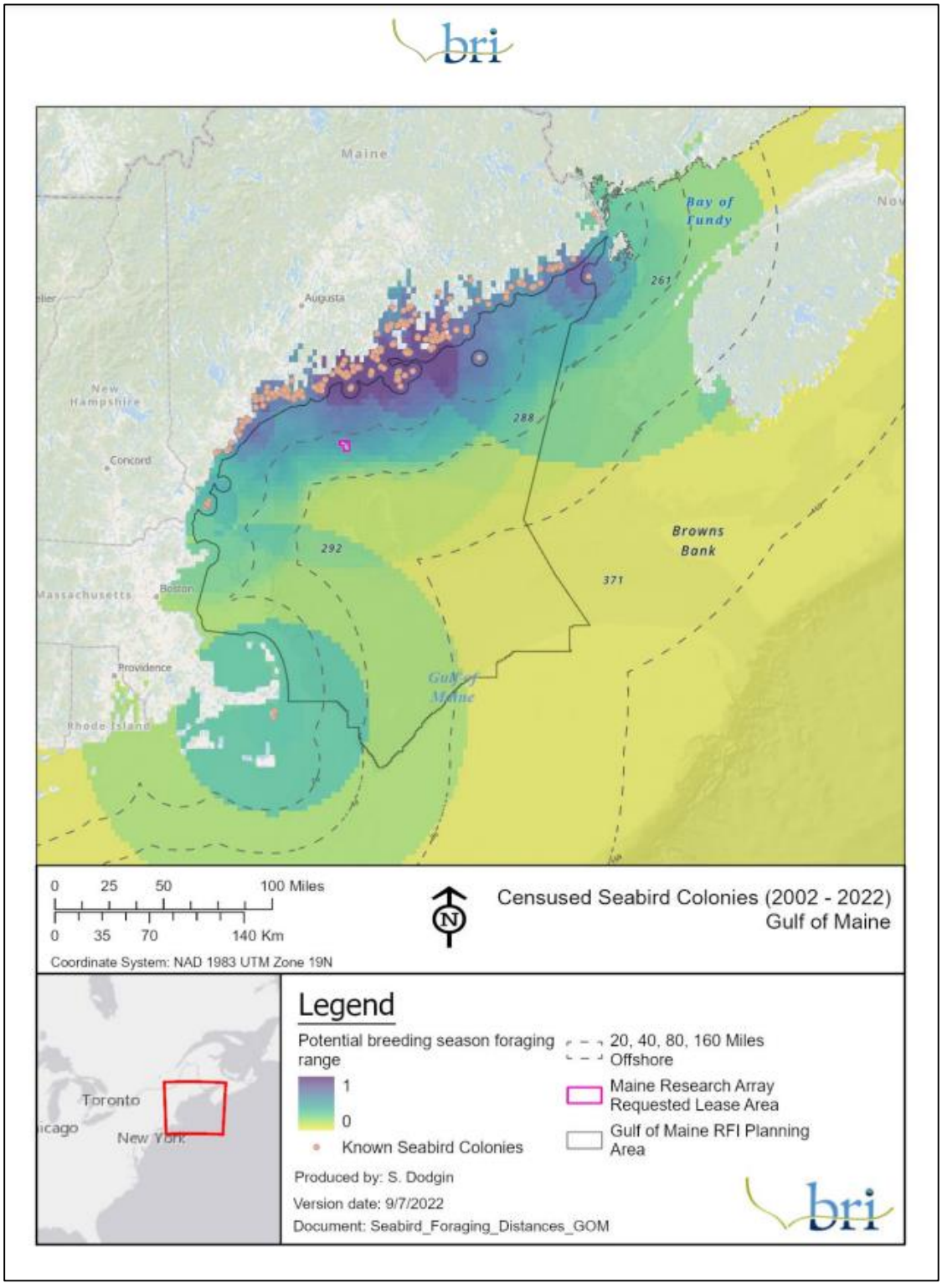

Figure 2. Foraging areas of importance for 14 species of nesting marine birds built using the maximum foraging distance for each species, weighted by the relative species-specific colony census counts.

Figure 3

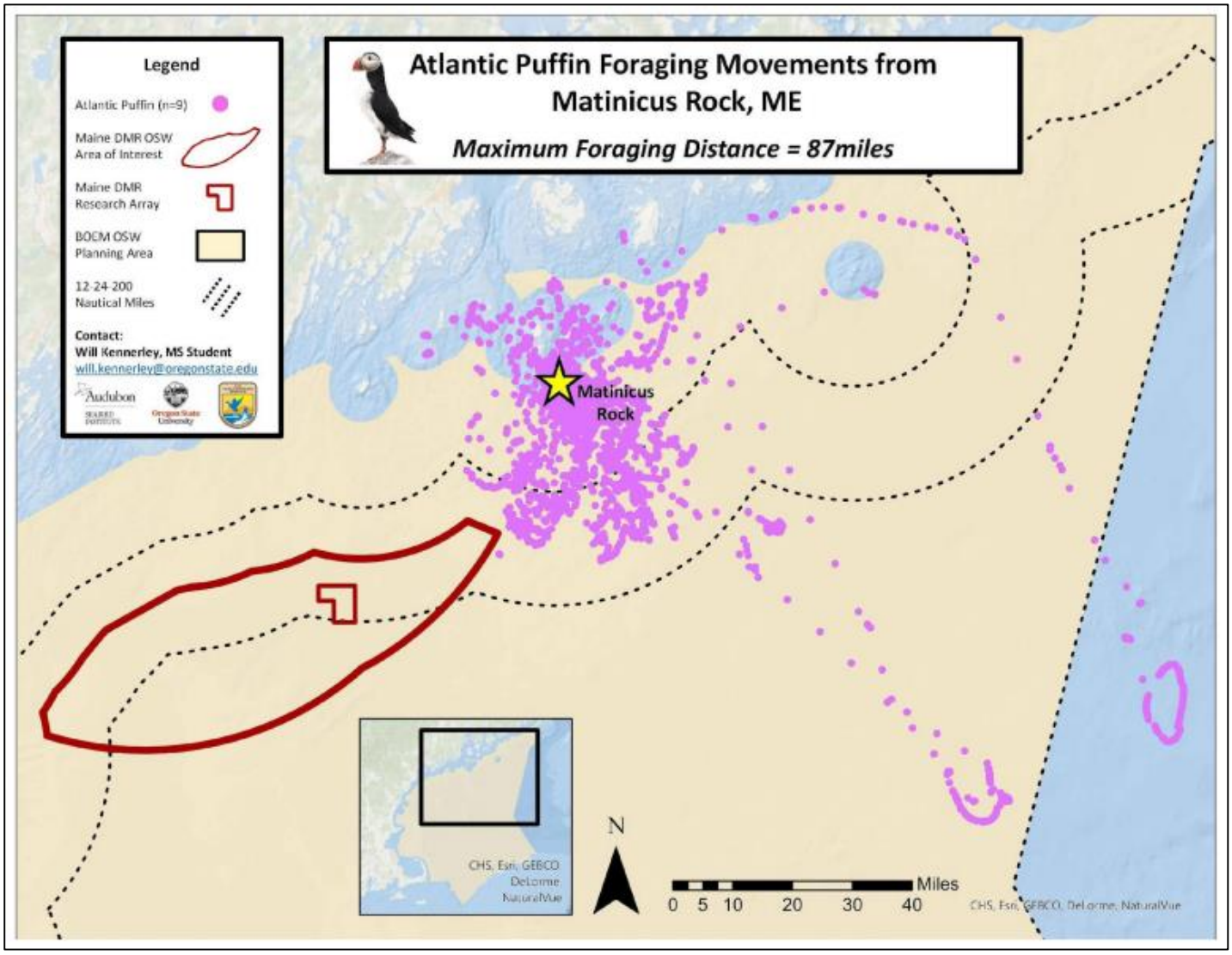

Figure 3. Atlantic Puffin foraging movements from 9 individuals tagged at Matinicus Rock, ME in summer 2022. The maximum foraging distance was 140 km (87 statute miles). The Maine area of interest and final proposed research array location are indicated in red. Distance from shore is indicated with black hash marks. These data are the results of a single breeding season.

Figure 4

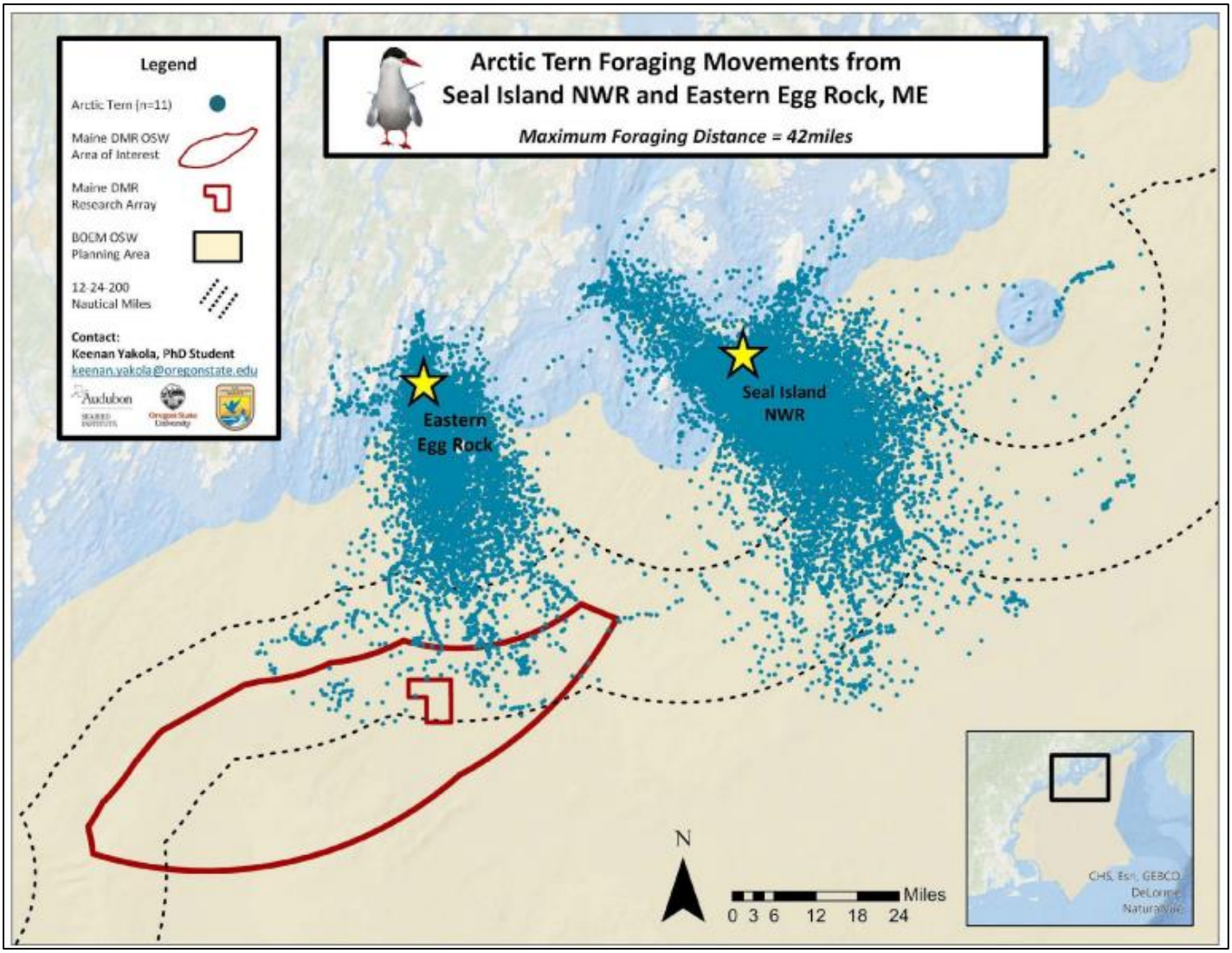

Figure 4. Arctic Tern foraging movements from 11 individuals tagged at Seal Island National Wildlife Refuge and Eastern Egg Rock, ME in summer 2022. The maximum foraging distance was 67.5 km (42 statute miles). The Maine area of interest and final proposed research array location are indicated in red. Distance from shore is indicated with black hash marks. These data are the results of a single breeding season.