

South Fork Wind

CRMC Staff Summary and Recommendations

Federal Consistency – CRMC File 2018-10-082

The South Fork Wind, LLC (SFW) offshore renewable energy project consists of up to 15 wind turbine generators (WTGs) in the 6 to 12 megawatt (MW) range and associated foundations, one offshore substation (OSS) and associated foundation, an inter-array cable network connecting the WTGs and the OSS, and an alternating current electric submarine export cable of 138 kV that will make landfall at the Town of East Hampton on Long Island, NY. The SFW lease area OCS-A 0517 is approximately 13,700 acres in size and is located on Cox Ledge in Rhode Island Sound approximately 19 miles east-southeast of Block Island, RI. See Figure 1. The SFW project is located in federal waters on the outer continental shelf (OCS) in Lease OCS-A 0517 and no portion of the project is within Rhode Island state waters. The electricity generated by the SFW project will interconnect with the Long Island Power Authority (LIPA) transmission system on Long Island, NY, part of the New York Independent System Operator (ISO) electric grid system. Rhode Island will not receive any of the renewable energy generated by the SFW project as it is part of the separate New England ISO electric grid. The project is being constructed by South Fork Wind, LLC, a joint venture between Ørsted and Eversource (a Massachusetts based energy distributor).

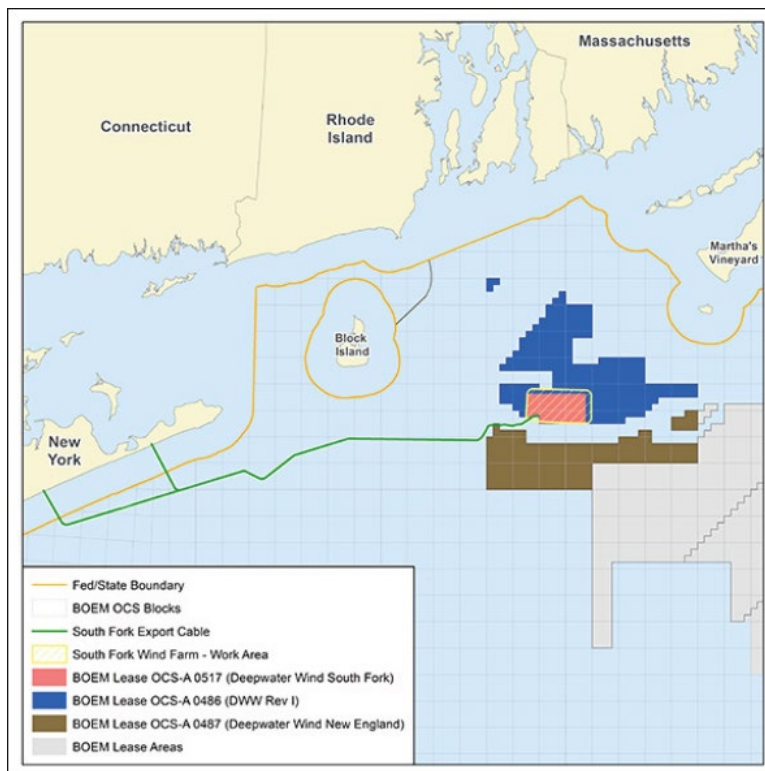


Figure 1. South Fork Wind Farm project area within BOEM lease assignment OCS-A 0517 as approved on March 23, 2020. Source: BOEM

The CRMC has **federal consistency** review authority for the SFW project pursuant to the Coastal Zone Management Act (CZMA) at 16 U.S.C. §§ 1451 *et seq.*, and the CZMA regulations at 15 C.F.R. part 930, subpart E, because Rhode Island has a federally-approved coastal management program, the project is a listed federal activity with coastal effects, and the project is located within the CRMC geographic location description (GLD 2011) that is coincident with the Ocean SAMP boundary, as approved by the National Oceanic and Atmospheric Administration (NOAA) Office of Coastal Management. The CRMC's enforceable policies applicable to the SFW project are found in the Ocean SAMP as codified in the Rhode Island Code of Regulations at 650-RICR-20-05-11.10.

SFW filed a consistency certification with the CRMC on October 22, 2018, pursuant to the federal consistency regulations 15 C.F.R. §§ 930.57 and 930.76(a)(2), stating “[t]he proposed activity complies with the enforceable policies of the Rhode Island approved management program and will be conducted in a manner consistent with such program.” See SFW Construction and Operation Plan (COP) Appendix A. SFW provided responses to each of the Ocean SAMP § 11.10 enforceable policies. For purposes of this summary document only the enforceable policies at issue are included herein with the CRMC staff analysis. The corresponding SFW responses combine both the wind farm (SFWF) and export cable (SFEC) responses from Appendix A. This abbreviated CRMC staff analysis is a portion of the full analysis as contained within the draft federal consistency decision, which will not be completed until after Council action in the SFW matter on May 25, 2021.

Ocean SAMP Enforceable Policy Issues

§ 11.10.1(C)

*Offshore developments shall not have a significant adverse impact on the natural resources or existing human uses of the Rhode Island coastal zone, as described in the Ocean SAMP. In making the evaluation of the effect on human uses, the Council will determine, for example, if there is an overall net benefit to the Rhode Island marine economic sector from the development of the project or if there is an overall net loss. Where the Council determines that impacts on the natural resources or human uses of the Rhode Island coastal zone through the pre-construction, construction, operation, or decommissioning phases of a project constitute significant adverse effects not previously evaluated, the Council shall, through its permitting and enforcement authorities in state waters and through any subsequent CZMA federal consistency reviews, **require that the applicant modify the proposal to avoid and/or mitigate the impacts or the Council shall deny the proposal.** (Emphasis added.)*

SFW Response: The SFWF (and SFEC) is consistent with this policy. The SFWF (and SFEC) will not have significant adverse impact on the natural resources or human uses of the RI Ocean SAMP study area. It is expected that current activities will be able to continue post construction.

CRMC Analysis: The first part of the enforceable policy requires that the Council determine whether “there is an overall net benefit to the Rhode Island marine economic sector from the development of the project or if there is an overall net loss.” Table 4.6.1 Socioeconomic Region of Influence Communities of the SFW COP indicates that Rhode Island could be a potential location for an operation and maintenance facility and that Providence may be considered as a port facility for assembly, staging and logistics for the SFW project. See SFW COP at 4-339. In addition, Table 4-1 of the Economic Development and Jobs Analysis for the South Fork Wind Farm and the South Fork Export Cable shows the total jobs and value added values for both the total U.S. and the state of New York only. The total value added impact (in 2018 dollars) of the SFW project will be \$57.1 million for New York and \$213.2 million for the United States during the expected two-year construction phase and a total value added impact of \$3.9 million for New York and \$9.5 million per year for the United States during the operations phase. The COP and the Appendix analysis report do not attribute any direct economic benefits specifically to the State of Rhode Island. See SFW COP Appendix AA (<https://www.boem.gov/Appendix-AA/>). Thus, neither the COP nor Appendix AA attribute any direct economic benefits to the state of Rhode Island as a result of the SFW project. Given the lack of economic information within the COP, CRMC staff inquired of the applicant as to whether there were any direct economic benefits to the state from the SFW project and received a document from Ørsted titled “South Fork Wind (SFW) estimated economic impact to RI,” dated April 15, 2021. It reports that the SFW project’s impact on RI economic development is estimated to be approximately \$33 million in local investment and approximately 134 local jobs. These projections are based upon economic development plans that include development and procurement efforts to date as well as committed and planned investments by Ørsted, which apparently have been reviewed by RI Commerce.

As shown in the CRMC South Fork Wind - Coastal Effect Analysis the net combined total of commercial, charter and recreational fishing economic exposure value for Rhode Island attributable to the SFW lease area over the 30-year project lifetime is estimated at between \$30,141,258 and \$50,473,735. Ørsted has acknowledged that there could be up to a 100% loss of commercial landings during some portions of construction and decommissioning phases for the SFW project, and only acknowledges a 5% loss during the 25-year operational phase. The CRMC Fishermen’s Advisory Board (FAB), however, has estimated that there will be at least 100% losses during all construction and decommission phases and between 50-80% losses to commercial, charter and recreational fishing revenues during the 25-year operational phases. The estimated potential losses to the Rhode Island economy over the life of the SFW project using the FAB 50-80% losses for both SFW and FAB economic data could range from \$15,070,629 upwards to \$40,378,988. Accordingly, based on the estimated 30-year project lifetime economic exposure range, the FAB estimated losses could be substantial to the RI economy and equal or exceed Ørsted’s SFW project RI economic development impact estimated at approximately \$33 million. **Therefore, given the uncertainties of Ørsted’s economic estimate and the FAB estimated potential losses, CRMC staff cannot determine whether there will be an overall**

net benefit to the Rhode Island marine economic sector from the SFW project or if there will be an overall net loss.

The second part of the enforceable policy requires that “the applicant modify the proposal to avoid and/or mitigate the impacts or the Council shall deny the proposal.” In the case of federal consistency, as in this matter, the Council would object to the project consistency certification in the event significant adverse effects from the project cannot be avoided or mitigated in accordance with the CRMC enforceable policies. The Bureau of Ocean Energy Management (BOEM) is the lead federal agency for the permitting of offshore wind projects in federal waters. BOEM issued a Draft Environmental Impact Statement (DEIS) for the SFW project on January 8, 2021 and it describes a number of potential unavoidable impacts to commercial fisheries and for-hire recreational fishing interests resulting from the SFW project as specified within Section 4.1.1 of the DEIS. These unavoidable impacts include:

1. A disruption to access or temporary restriction in port access or harvesting activities due to construction of offshore project elements;
2. A disruption to harvesting activities during operations of offshore wind facilities;
3. Changes in vessel transit and fishing operation patterns; and
4. Changes in risk of gear entanglement or target species.

See BOEM DEIS at 4-1.

Indeed, the temporary displacement of commercial fishing activity did occur during the construction and installation phase of the Block Island wind farm in 2015 and 2016. As noted above BOEM anticipates disruption to commercial fishing harvesting activities during operations of offshore wind facilities, and the operational period of the SFW project is 25 years. The FAB has indicated that there will be changes in vessel transit and fishing operations as a result of the SFW project. And further, the FAB has indicated that there will be risk of gear entanglement due to wind farm construction vessels and the turbine foundations. As explained in the CRMC South Fork Wind - Coastal Effect Analysis commercial fixed gear fishermen (e.g., lobster pots and gillnets) will lose 40% or more of their gear sets conforming to a 1 x 1 NM uniform grid turbine wind farm layout as compared to current operations, as the fixed gear will only be set in between turbine foundations and only along the east-west rows of turbines so that mobile gear operations towing nets or dredges can operate the clear lanes between the rows of turbines.

As noted below in the discussion for § 11.10.2(B), the currently proposed SFW project includes up to 16 foundations (15 turbines, 1 OSS) in a 1 x 1 NM uniform east – west grid that aligns with the southern New England regional grid proposed by the offshore wind industry. The SFW project is located on a terminal glacial moraine. See COP at 4-79. It is a location rich with species and a complex benthic habitat, known as Cox Ledge, and has many similar attributes and characteristics as CRMC designated area of particular concern (APC) located within state waters as described in Ocean SAMP § 11.10.2(A). Cox Ledge is designated on nautical charts and in charter fishing brochures. The applicant asserts that current fishing activities will be able to

continue once construction of the SFW project is completed (COP Appendix A-2). The developer expects that there will be disruption to current fishing activities during project construction as well as during the decommissioning phase.

Direct impacts during the geophysical surveying, construction and decommissioning phases would affect commercial fishing, charter and recreational fishing, sightseeing and indirect shore side impacts. The addition of up to 16 foundations and cable armoring where cable burial cannot be achieved will introduce structure to the environment that creates adverse impacts to existing Rhode Island based coastal uses. The introduction of physical structure in the water column has a high probability to disrupt the ecosystem as has been observed at the Block Island Wind Farm and wind farms in Europe. Cox Ledge is one of the few remaining places in Rhode Island Sound that Atlantic cod are found at all life stages and the area is heavily targeted by charter and recreational fishing due to the current species diversity that is not found in other locations within the region. The bottom structure and habitat of the South Fork lease area are similar to the CRMC designated APC within state waters. In addition, it is an area of significance to the charter and recreational fishery as well as to commercial fishing operations. As such, the CRMC enforceable policies for APC presumptively exclude all offshore development within such areas. See further discussion below regarding CRMC enforceable policy § 11.10.2.

Pre-construction geophysical surveys were conducted to support the development of the SFW COP, and further survey vessel activity continues especially along the export cable route and in support of other planned offshore wind farms. The CRMC received numerous reports over the last 2 years of survey vessel operations impacting Rhode Island based commercial fishing vessels and fixed gear. Apparently, similar incidents from multiple states have been reported at various public meetings including the BOEM public scoping sessions of conflicts of the survey vessels with fixed commercial fishing gear. The survey vessel interactions included the loss of fixed gear and the displacement of mobile gear fishing activity during active geophysical surveys. Decreased fishing activity yield was also reported in the vicinity of the survey vessels, but recovery to recent catch levels was reported after the survey vessels exited an area. This indicates a temporary, but significant impact to Rhode Island based commercial fishing activity during the pre-construction phase of the proposed project.

During construction and decommission phases the CRMC expects significant disruption to existing Rhode Island based coastal uses and resources. The proposed 16 foundations are expected to be installed at a rate of one every 2-4 days at a time of the year to optimize avoidance of disruption to sensitive marine mammals like the Right whale. Pile driving of foundations is anticipated within the SFW COP to be 2-4 hours per pile, and the noise impact from the pile driving will be transmitted along the ocean sediment interface and to a lesser degree in the water column after being somewhat mitigated by noise mitigation bubble curtains. Nevertheless, it is expected as shown in Appendix J of the COP that mortality to fish, eggs and larvae will occur around each pile, which will be an adverse impact. The disruption to the marine habitat is not confined to the lease area, but is governed by the nature of the substrate. The

additional vessel activity in the area will introduce local mechanical disruption to the benthos and water column but also increase the ambient noise levels in the water column.

The construction activity includes the displacement of approximately 255 acres of existing boulders within the South Fork lease and along the export cable route that will change the benthic landscape for Rhode Island commercial fishermen who have been working these waters for decades. See SFW COP at 3-13. Some of these boulders within the SFW lease area are significantly large at up to 32 feet in diameter. *Id* at 4-79. Unless the developer provides detailed reports on boulder re-location, the commercial fishermen will be faced with additional challenges if and when they return to harvesting activities within these disturbed areas. As a point of reference, the installation of the Block Island Wind Farm did not meet its planned installation schedule, and was completed following significant delays. With the complexity of glacial deposits at the South Fork site, the possibility exists that the installation schedule will encounter delays and significant installation challenges, especially because the SFW project is farther offshore than the BIWF. The impacts of construction and decommissioning are expected to be significant, but constrained temporally with the recovery to the benthos expected to occur within several years under natural forcing conditions.

As specified in the coastal effects analysis section, construction noise, especially from pile driving will have significant impacts to marine life. Pile driving noise will be lethal to fish, eggs and larvae over 10 acres surrounding each pile foundation for a total of 163 acres even with the proposed 10dB noise attenuation. And the potential cumulative exposure for fish, eggs and larvae may be up to 7455 acres or 54% of the SFW lease area, which is significant. Given the geological complexity of the glacial moraine within the SFW lease area, it would seem prudent to consider that many of the pile foundations are likely to be difficult installations, which would increase the cumulative potential lethal effects of pile driving. This scenario could potentially have serious consequences on the survivability of multiple fish species eggs and larvae during spring when pile driving is scheduled to commence as early as May 1 and could result in a significant impact to a year class of important species relied upon by Rhode Island based commercial and recreational fishing interests. In addition, the SFW COP shows the behavioral effects threshold for fish from the expected pile driving activity to be 41,818 feet (7.9 miles) beyond the pile being driven. See COP at 3-23. Thus, the effects to fish behavior could extend almost 8 miles beyond the lease area. Given that the pile foundation driving is limited to the period of May 1 to December 31 and the SFW COP indicates pile driving will occur over a period of 4 months and it is estimated that fish will return to an area impacted by pile driving noise after 2 months, it is expected that commercial and recreational fishing activity will be adversely impacted over the spring, summer and fall fishing seasons.

During the operational period, the SFW turbine and OSS foundation structures will remain in place causing alterations to existing Rhode Island based fishing activities. As discussed in CRMC's federal consistency concurrence for the Vineyard Wind 1 project, Rhode Island commercial fishermen proposed an east-west uniform grid wind farm layout with minimum 1 by 1 nautical mile spacing and transit corridors. The CRMC stated that this would allow continued

harvesting by most commercial fishing with the necessity of modifications and adjustments to fishing gear and operations, which was a compromise by the fishing industry in an effort to adapt to wind farm structures and anticipated wind farm plans. In November 2019 the offshore wind industry holding leases in the southern New England OCS collaboratively joined together to propose a 1 by 1 NM uniform grid for this contiguous wind development area of approximately 1400 square miles. The SFW COP was modified again in February 2020 after an initial submission in 2018 to conform to this industry proposed southern New England regional wind farm layout. While the turbine spacing for each project may be wider than the developer's optimized spacing and layout, the size of commercially available wind turbine generators has increased allowing developers to reduce the infrastructure necessary to meet a specific project purpose and need. Nevertheless, the BOEM Supplemental Environmental Impact Statement (SEIS) for the Vineyard Wind 1 project indicates that even with the wind farm project conforming to the 1 x 1 NM uniform grid layout there will be **moderate** impacts to commercial fisheries and For-Hire recreational fishing operations. Moreover, BOEM's analysis anticipates that there will be **major** impacts to commercial fisheries and For-Hire recreational fishing activities following reasonably foreseeable future wind farm construction in the region. In fact, the recently issued Record of Decision (ROD) for the Vineyard Wind 1 project states **"it is anticipated that there will be negative economic impacts to commercial fisheries. While Vineyard Wind is not authorized to prevent free access to the entire wind development area, due to the placement of the turbines it is likely that the entire 75,614 acre area will be abandoned by commercial fisheries due to difficulties with navigation."** See Vineyard Wind ROD at 39 (<https://www.boem.gov/renewable-energy/state-activities/final-record-decision-vineyard-wind-1>). Accordingly, the CRMC expects that Rhode Island based coastal uses will be adversely affected and not able to continue at existing operational levels during the SFW project 25 year operational period.

The current so-called "gentlemen's agreement" within the Rhode Island commercial fishing community sets up alternating fixed and mobile gear lanes of operation on a 0.5-0.6 NM east-west grid within Rhode Island Sound. The addition of wind turbine foundation infrastructure on a 1 x 1 NM uniform grid will reduce the area available for fixed gear fishing by up to 50 percent. The risk of allision may require fishing operations to hire additional crew specifically for navigation within the wind farm and during transit when adverse weather, including fog, is expected. The interference impacts of the turbine foundation structures on vessel radar increases the risk of both collision and allision within the wind farm particularly in adverse visibility and poor weather conditions. Rhode Island based fishing vessels may choose to avoid the SFW project area when a vessel captain deems it unsafe to navigate within the area either for fishing activity or transiting to other fishing grounds. In adverse weather conditions, vessel transit may be require to be routed around the SFW project for safety concerns. Insurance underwriters for commercial and recreational fishing may deem that the safety and property risks are too great for them to offer policy coverage at any rate for vessels operating within or around the SFW project area. Rhode Island based commercial fishermen may not be able to harvest within the SFW project in adverse weather without significantly modifying their navigation electronics or adding

crew for safe operations. In addition, NOAA will not be able to continue their stratified random fishery stock assessment surveys in the SFW project area because of safety concerns, especially due to vessel clearance with wind turbine rotor sweep. This may result in a reduction of NOAA NMFS harvest quotas assigned to Rhode Island commercial fishermen. And, if the fishermen are displaced from the SFW project area, the fishing pressure on the fishery resources outside of the project area could be impacted with resources and harvesting income being divided amongst more fishing vessels resulting in lower catch and revenues. This situation could result in a cascading effect that may point to the need for a reduction in the overall commercial fishing fleet to allow some commercial fishing businesses to remain solvent.

Rhode Island charter (For-Hire) and recreational fishing specifically target Cox Ledge for species diversity, particularly Atlantic cod and large highly migratory game fish. The combination of the bottom structure and the current dynamics creates an environment that attracts sport fish of interest including, but not limited to, Atlantic cod, tuna, pollock and sharks. Many charter businesses state “if you can’t find fish elsewhere, head to Cox Ledge,” they also state that the weather is a significant factor for a trip to Cox Ledge. Because of its popularity several recreational angler forums have dedicated channels for Cox ledge and what is being caught out there. A potential impact for charter and recreational anglers is for the large pelagic sport fish to use the foundations as cover. With the large amount of line out over the hours trying to land a large fish such as a tuna or shark it is unlikely if these Rhode Island based coastal users would continue to fish within the SFW lease area on Cox Ledge due to the potential to lose a large hooked fish. In fact, the SFW COP *Navigation Safety Risk Assessment* states “drift fishing and trolling are common recreational fishing techniques used on Cox Ledge. There is the possibility that fishing lines or other gear may catch on Project structures or scour protection around the base of the foundation and be damaged or lost.” See SFW COP Appendix X at 74 (<https://www.boem.gov/Appendix-X/>).

The Rhode Island charter and recreational fisheries has a significant landside indirect component and can contribute to the tourists wrapping up their trip by purchasing seafood at dockside from the other commercial fishermen to round out their Rhode Island experience. And while the proposed SFW project is almost entirely in federal waters it is located in a region fished by Rhode Island based fishermen and frequented by recreational anglers from areas outside of Rhode Island. As noted above, it is estimated that the combined economic exposure for both charter and recreational economic impacts to Rhode Island that are attributable over the 30-year lifetime from the SFW lease area is estimated at between \$17,777,334 and \$ 27,880,012. Significant impacts to existing charter and recreational fishing operations will likely occur from the development and operation of the project. Accordingly, even a 50% loss of charter and recreational fishing economic exposure over the life of the SFW project would be significant to the state of Rhode Island ranging from \$8,888,667 to \$13,940,006.

BOEM’s SEIS for the Vineyard Wind 1 project indicates that for the entire region, the development of wind farms will result in continuous, long-term minor to moderate direct and indirect impacts to marine based businesses due to the presence of the new structures on the

OCS. See BOEM VW SEIS at ES-5 (<https://www.boem.gov/renewable-energy/vineyard-wind-1-supplement-eis>). BOEM has considered the regional economic benefits of supply chain and the impact of developing renewable energy resources into their analysis. The VW SEIS lists the potential direct impacts as entanglement, gear loss/damage, navigational hazards and risk of collision, fish aggregation, habitat alteration, effort displacement and space use conflicts.

Climate change is shifting species northward including Black Sea Bass, Scup and the American Lobster (RIDEM 2021). Despite this regional species shift, fishermen and ongoing monitoring (discussion at RI MFI fall 2019 meeting, 2021 communication from RI DEM, NEFMC 2020, Zemeckis et al. 2014) are observing increases in Atlantic cod near Cox Ledge. Sufficient spatial and temporal data do not exist to properly characterize the spawning activity (DeCelles et al. 2017). Metapopulation structure has been identified at fine spatial scales and is likely critical to the survival of the overall stock (McMannus 2021). A distinct southern New England cod stock has been found to exist on Cox Ledge with spawning known to occur between November and January and from February to April. Recreational angling for Atlantic cod is important on Cox Ledge and recreational angler reports support a significant increase in population over the past 15 years (Sheriff 2018). Early life stage Atlantic Cod require boulder, cobble and pebble substrates and return to the same spots to spawn (Zemeckis et al. 2017). Spawning is sensitive to disturbance (Dean et al. 2012). Given the available data, it appears that the SFW area holds unique traits that serve as a refuge for all life stages of Atlantic cod as well as a unique cod population that is growing in number compared to the regional trend of population decline.

The proposed SFW project will add structure to the area that extends through the water column with a significant potential to alter the species composition of the fish targeted on Cox Ledge and beyond. For each fish caught, there are several orders of magnitude of juvenile and larval stages that failed to survive to harvest and the same mortality applies to the prey of these fish (e.g. Andersen *et al.* 2016; Sprules and Barth 2016; Sheldon et. al. 1972, Peters 1983; Sheldon and Parsons 1967). Each fish caught represents millions of early life stage individuals. The addition of structure throughout the water column will alter the ecosystem and the ecosystem dynamics by altering both the initial and boundary conditions for every species at every developmental life stage. It has been observed that wind farm foundations provide structure for blue mussels to colonize (Block Island Wind Farm and European Wind Farms). The blue mussels deplete the phytoplankton biomass in the water. Fisheries species abundance in highly sensitive to phytoplankton biomass (e.g. Large *et. al.* 2015; Friedland *et.al.* 2019) and serves as a marker of ecosystem health. The structure provides refuge as well as feeding grounds for mobile species. Mavraki et al. (2021) studied the reef effect of wind farms and found that benthopelagic and benthic species utilize the structures as a feeding ground for the colonizing organisms and for undetermined reasons (digestive tract analysis revealed not all species were consuming fouling fauna), however their study indicated that pelagic species residence time was not increased. Ecosystem dynamics within wind farms is not well known and wind farms constructed on top of productive regions for early life stage and bio-diversity are not yet reported or studied. There also is a significant concern that sufficient baseline data to understand these

changes does not exist for the South Fork area. With the level of surveying activity currently underway, it is not possible to obtain a clean and undisturbed ecosystem assessment for the area.

Observations at the BIWF document a shift in species around the turbine foundations. The dominant species is Black Sea Bass, a species targeted by the inshore recreational fishermen. An increase in large sport fish has not been observed, but an increase in recreational fishing has been witnessed at the BIWF mainly due to the fact that the turbines are a large visual clue as to where fish may be found and are relatively close to shore reducing the gas and time required for a trip (Black Sea Bass and Tautog, Orsted fishinar November 2020). With the significantly increased distance to the proposed SFW project, it is uncertain if this attraction will remain due to fuel costs, transit time and safety risk if adverse weather were to develop. Also if the species of fish that colonize the foundations is found closer to shore, the desire for the additional risk and cost is projected to be low. The BIWF has served as a tourist attraction for unsuccessful fishing trips where on bad days charters can retain angler's interest by offering a sightseeing tour of the wind farm when fishing is poor. This is possible to add value due to its close proximity to land keeping additional fuel costs and transit times minimal. However, the additional distance to Cox Ledge presents a significantly greater cost and risk as added value to a slow fishing trip. Thus, the BIWF offers a much greater incentive for sightseeing than the proposed SFW project.

There are concerns that the atmospheric wake of the wind farm will alter surface flow. This can impact the local upwelling and circulation. Based on the European experience, NOAA is concerned about growing evidence that the wind farm wakes can lead to anoxic zones extending many kilometers downwind of the wind farms. This is an area of active investigation but indicates concerns for another avenue for primary production to be altered in the surface downstream of wind farm. As mentioned above, alteration of primary production alters then entire ecosystem. The USCG has expressed concerns (DOE meeting 2020) that the wake impacts on the surface circulation will alter their ability to model the surface for search and rescue (SAR) operations. They have called for more research into the ability to accurately model the impact of the wake deficit on the surface circulation. Note that these are regional impacts that will impact stakeholders many kilometers downwind of the actual lease area.

The potential for a cable to fail presents additional risk to the environment and users of the region. While it is unlikely that a cable will be cut by an anchor, this situation did in however, in July 2020 the 12 MW Ørsted Coastal Virginia Offshore Wind (CVOW) project cable was cut the day after it was laid by a ship weathering a storm. The CVOW export cable was still exposed after being laid and the cable trench had not yet been filled in. Cable failures and faults result in approximately 85% of insurance claims for offshore wind. This risk of failure is one reason to not bury the cables too deep to keep the repair costs down but also presents environmental disturbance and impacts when repairing the cable. Also the generation capacity is lost to the ratepayers (ISO New England) while the cable is severed from the grid. And, just recently Ørsted has revealed that some of its inter-array cables in their U.K and European wind farms have been damaged by scraping against scour protection (rocks) installed around the turbine foundations and they will need to spend as much as \$489 million for urgent repairs over

the next two years. Ørsted has identified a total of 10 projects in the U.K. and Europe that used the cable protection design that is subject to the observed failures. See: <https://www.theguardian.com/business/2021/apr/29/rsted-says-offshore-uk-windfarms-need-urgent-repairs>.

The CRMC recognizes the importance of developing offshore wind renewable energy sources to combat and reduce adverse climate change impacts, and to meet state, regional and national greenhouse gas reduction goals as detailed within the Ocean SAMP. One of the primary CRMC goals is to have co-existing human service industries of offshore renewable energy and existing fishing industries that benefit Rhode Island, while maintaining the integrity and health of the marine ecosystem, coastal resources and coastal uses. The development of offshore wind under the Ocean SAMP was envisioned as a process in a controlled and scientifically supported way under the guidance of adaptive management with a regional view. The logical development pathway was to start with demonstration projects such as Block Island Wind Farm, CVOW and the floating wind turbine project effort in Maine. The next logical step is to scale development up to a small utility scale project based on the lessons learned from the first step. This allows proactive planning based on scientific best practices. The proposed SFW project is exactly aligned with this desired progression in size and scope. Nevertheless, the location of the SFW project on Cox Ledge, an area known for its biological diversity, is in our view one of the worst possible locations within Rhode Island Sound for this project. There is significant uncertainty and lessons yet to be learned without siting the SFW project directly on glacial moraine, including complex marine habitat with similar characteristics as CRMC designated APC in state waters. If the same site and project were located within state waters, at least 38% of the SFW lease area would be designated as APC. The project location selected will impact many Rhode Island based coastal uses and early life stages for many important commercial and recreational species found within the SFW lease area.

The joint venture for the South Fork Wind project has made modifications to the SFW project during the CRMC federal consistency review. The primary modification came about with several iterations of the configuration and spacing of the wind turbine foundations from 2018 into 2020. Although the spacing between turbines averaged less than 1 NM in the May and November 2019 COP revisions, the February 2020 COP included the 1 x 1 NM uniform east-west grid layout consistent with the U.S. Coast Guard recommendation for the MA-RI wind energy area. Other modifications made by the developer include a gear loss claims process, and although there was considerable negotiation during 2020 to come to terms of agreement on a standardized framework and a business interruption component, the FAB ultimately could not agree to the process as proposed by Ørsted as it does not allow applicants to file multiple claims for gear loss in the same area and any payment will be considered a full release. These conditions were not accepted by the fishing community. Nevertheless, the gear loss claims process is available from the Ørsted website: <https://us.ored.com/wind-projects/mariners>. SFW has also developed a fisheries communication plan to provide notice to mariners of survey and construction activities and is available from the same preceding web page. Other modifications include the addition of automatic identification system (AIS), advanced cellular, and a very high-

frequency coverage into the WTGs. And, SFW intends to target sufficient cable burial depth and microsite turbine foundations to minimize impacts to sensitive benthic habitat. See South Fork Wind letter dated March 11, 2021. The primary modification to the SFW project is the adjustment in the turbine foundation layout to a uniform 1 x 1 NM grid in an effort to minimize impacts to commercial and recreational fishing activities. The CRMC, however, does not consider development and implementation of a gear loss claims process and a comprehensive fisheries communication plan to be modifications to the SFW project to avoid or minimize impacts resulting from the SFW project.

Despite the modifications made to the SFW project, including the planned 1 x 1 NM uniform grid layout, the developer asserts current commercial and recreational fishing activities are expected to be able to continue post construction with minimal to no impact. However, the installation of 16 foundations within glacial moraine and an area renown for attracting fish, commercial harvesters and recreational anglers, will result in a disruption to and in some cases exclude existing Rhode Island based coastal uses over the life of the project. For example, the FAB had estimated that there would be a loss to commercial fishing landings of between 50% and 80%. See FAB March 25, 2021 letter. In addition, the U.S Army Corps of Engineers within the May 11, 2021 Record of Decision for the Vineyard Wind 1 project anticipates that there is the possibility that due to the placement of the turbines it is likely that the entire 75,614 acre area will be abandoned by commercial fisheries due to difficulties with navigation. Moreover, BOEM's DEIS for the SFW project declares the following potential unavoidable impacts to commercial fisheries and for-hire recreational fishing interests: disruption to access or temporary restriction in port access or harvesting activities due to construction of offshore project elements; disruption to harvesting activities during operations of offshore wind facilities; changes in vessel transit and fishing operation patterns; and changes in risk of gear entanglement or target species. See BOEM DEIS at 4-1.

The enforceable policy at § 11.10.1(C) requires that “the applicant modify the proposal to avoid and/or mitigate the impacts.” **CRMC staff have determined that despite modifications made to the proposed SFW project by the developer, the project will have adverse impacts on the Rhode Island based coastal uses and resources during project construction, operation and decommissioning phases. Consequently, mitigation measures are required in accordance with enforceable policies §§ 11.10.1(G) and (H).**

§ 11.10.1(F)

The Council shall prohibit any other uses or activities that would result in significant long-term negative impacts to Rhode Island's commercial or recreational fisheries. Long-term impacts are defined as those that affect more than one or two seasons.

SFW Response: The SFWF (and SFEC) is consistent with this policy. There are no expected significant long-term negative impacts to Rhode Island's commercial or recreational fisheries from the SFWF (and SFEC).

CRMC Analysis: The SFW COP indicates that turbine foundations will be installed over a period of 4 months, the inter-array cable will also be installed over a period of 4 months, WTG installation will be over a 2 month period and the duration of the OSS installation will be 1 month. See SFW COP at 1-47. The general construction sequence described in Section 3.1.3 of the COP is the installation of the pile foundations followed by installation of approximately 21 miles of the inter-array cable and any necessary secondary cable protection. Given the complexity of bottom geology due to the glacial moraine and the numerous boulders (see Figure 3.4.2-1 of the BOEM SFW DEIS at 3-6; Figure 8 herein), many of which may have to be relocated to allow foundation and cable installation, it is highly likely that construction duration estimates may be exceeded beyond the COP time periods. From our experience with the Block Island Wind Farm there were numerous construction delays that significantly extended the anticipated construction duration. And given that pile driving activities will be limited to only the period between May 1 and December 31 of any year, it is possible that between weather delays and engineering constraints or installation difficulties, the anticipated construction time periods could very well be exceed beyond one or two seasons.

The enforceable policy § 11.10.1(F) considers any negative impact to Rhode Island’s commercial or recreational fisheries that exceeds “one or two seasons” to be a significant long-term impact. As discussed above for enforceable policy § 11.10.1(C), absent mitigation in accordance with enforceable policy § 11.10.1(H), there will likely be significant adverse, long-term effects to Rhode Island-based commercial and recreational fishing activities that operated and continue to operate within the SFW project area.

§ 11.10.1(G)

The Council shall require that the potential adverse impacts of offshore developments and other uses on commercial or recreational fisheries be evaluated, considered, and mitigated as described in § 11.10.1(H) of this Part.

SFW Response: The SFWF (and SFEC) is consistent with this policy. DWSF has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the SFWF (and SFEC). The SFWF (and SFEC) is not expected to have major long term impacts on commercial or recreational fisheries. Environmental protection measures have been identified to mitigate any potential impacts from the SFWF.

CRMC Analysis: Given that CRMC staff have determined that there will be impacts to coastal uses and resources as a result of the proposed project as described herein, irrespective of the modifications made to the project by the developer, mitigation is required pursuant to enforceable policy § 11.10.1(G). Accordingly, the developer must meet the mitigation requirements as specified in enforceable policy § 11.10.1(H), as follows

§ 11.10.1(H)

For the purposes of fisheries policies and standards as summarized in Ocean SAMP Chapter 5, Commercial and Recreational Fisheries, §§ 5.3.1 and 5.3.2 of this Subchapter, mitigation is defined as a process to make whole those fisheries user groups that are adversely affected by proposals to be undertaken, or undertaken projects, in the Ocean SAMP area. Mitigation measures shall be consistent with the purposes of duly adopted fisheries management plans, programs, strategies and regulations of the agencies and regulatory bodies with jurisdiction over fisheries in the Ocean SAMP area, including but not limited to those set forth above in § 11.9.4(B) of this Part. Mitigation shall not be designed or implemented in a manner that substantially diminishes the effectiveness of duly adopted fisheries management programs. Mitigation measures may include, but are not limited to, compensation, effort reduction, habitat preservation, restoration and construction, marketing, and infrastructure improvements. Where there are potential impacts associated with proposed projects, the need for mitigation shall be presumed. Negotiation of mitigation agreements shall be a necessary condition of any approval or permit of a project by the Council. Mitigation shall be negotiated between the Council staff, the FAB, the project developer, and approved by the Council. The reasonable costs associated with the negotiation, which may include data collection and analysis, technical and financial analysis, and legal costs, shall be borne by the applicant. The applicant shall establish and maintain either an escrow account to cover said costs of this negotiation or such other mechanism as set forth in the permit or approval condition pertaining to mitigation. This policy shall apply to all large-scale offshore developments, underwater cables, and other projects as determined by the Council.

SFW Response: The SFWF (and SFEC) is consistent with this policy. Environmental Protection Measures have been identified to mitigate any potential impacts from the SFWF (and SFEC). The SFWF Fisheries Communication Plan summarizes the outreach conducted and includes a Fishing Gear Conflict Prevention and Compensation Plan that identifies measures to Prevent gear loss, as well as a claim procedure in the event that gear loss is caused by SFWF (and SFEC) activities.

CRMC Analysis: SFW, LLC has not sufficiently modified the proposed project to avoid adverse impacts to Rhode Island based coastal users and resources as a result of construction, operation and decommissioning of the proposed wind farm as explained herein. Most notably in minimizing adverse impacts from turbine foundations and inter-array cables located within glacial moraine. Therefore, mitigation is required to offset the adverse impacts. The developer submitted a mitigation proposal dated September 28, 2020 to the CRMC and which was subsequently distributed to the FAB. Over 30 mitigation meetings were held between the CRMC, SFW and the FAB over the course of several months starting on October 29, 2020 and continuing into May of this year. There was considerable disagreement between the parties on the value of commercial landings and the economic exposure of charter and recreational fishing conducted within the South Fork lease area and along the export cable route. In January 2021 SFW offered a Navigational Enhancement and Training Program that would provide \$1 million

for Doppler enhanced radar units and training for eligible vessels fishing within the South Fork, Revolution Wind and Sunrise Wind lease areas (all leases held by Ørsted). A number of offers by the developer and counter offers by the FAB were proposed in an attempt to reach to reach agreement on mitigating for potential economic losses and impacts to the resources in an effort to “make whole those fisheries user groups that are adversely affected by proposals” and to mitigated for adverse impacts as required under the enforceable policy. Despite significant efforts over the course these meetings since last October we were unable to reach an agreeable mitigation package. **Accordingly, CRMC staff conclude that the SFW project is not consistent with enforceable policy § 11.10.1(H).**

§ 11.10.1(I)

*The Council recognizes that moraine edges, as illustrated in Figures 3 and 4 in § 11.10.2 of this Part, are important to commercial and recreational fishermen. In addition to these mapped areas, the FAB may identify other edge areas that are important to fisheries within a proposed project location. The Council shall consider the potential adverse impacts of future activities or projects on these areas to Rhode Island’s commercial and recreational fisheries. **Where it is determined that there is a significant adverse impact, the Council will modify or deny activities that would impact these areas.** In addition, the Council will require assent holders for offshore developments to employ micro-siting techniques in order to minimize the potential impacts of such projects on these edge areas. (Emphasis added.)*

SFW Response: The SFWF (and SFEC) is consistent with this policy. The SFWF (and SFEC) has been sited to avoid areas of particular concern, including moraine edges. When avoidance is not possible, protection measures will be employed to avoid to minimize impact to any moraine edges.

CRMC Analysis: The SFW project has not been sited to avoid glacial moraine (APC). In fact, a number of turbine foundations and inter-array cables are presently proposed to be located within glacial moraine, despite the potential to microsite some foundations. The CRMC Fishermen’s Advisory Board has indicated their preference that no part of the SFW lease area be developed due to the ecological and economic significance of Cox Ledge where the SFW project is sited. Cox Ledge has been designated the “crown jewel” by the Rhode Island based fishing community because it provides a unique spot for recreational and charter fishing activity with high probabilities to attract a large diversity of species including large pelagic predators which attract sport fishing from all over the East Coast, and Atlantic cod fish can be found there year round (Ocean SAMP Chapter 5). The Cox Ledge area provides critical ecosystem benefits for early life stages. The developer conducted more detailed high resolution benthic habit mapping than was available with the development of the Ocean SAMP more than a decade ago, and the information was provided to Federal and State agencies. The SFW analysis revealed that a number of the foundation locations will have to be micro-sited, as may be permissible under BOEM regulations at 30 C.F.R. § 585.634, in an effort to minimize impacts to glacial moraine.

As noted herein, the glacial moraine present on the SFW lease site meets the characteristics and definition of CRMC designated Areas of Particular Concern in state waters as specified in enforceable policies §§ 11.10.2(A) and 11.10.2 (C)(3). And, although the developer intends to microsite turbine foundations in an effort to avoid or minimize impacts to glacial moraine, the presently proposed SFW project has not avoided significant adverse impacts to glacial moraine. See further discussion on glacial moraine in enforceable policy § 11.10.2(B). Therefore, mitigation measures are required in accordance with enforceable policies §§ 11.10.1(G) and (H).

§ 11.10.1(J)

*The finfish, shellfish, and crustacean species that are targeted by commercial and recreational fishermen rely on appropriate habitat at all stages of their life cycles. While all fish habitat is important, spawning and nursery areas are especially important in providing shelter for these species during the most vulnerable stages of their life cycles. **The Council shall protect sensitive habitat areas** where they have been identified through the Site Assessment Plan or Construction and Operation Plan review processes for offshore developments as described in § 11.10.5(C) of this Part. (Emphasis added.)*

SFW Response: The SFWF (and SFEC) is consistent with this policy. The SFWF (and SFEC) is not expected to have negative effects on commercially and recreationally fished species and habitats. Siting of the SFWF (and SFEC) was informed by site specific habitat assessments. Impacts to habitat are expected to be short-term and localized. Environmental protection measures have been identified to minimize the potential impacts.

CRMC Analysis: A number of economically and ecologically important finfish species are found within the SFW lease area and along the export cable route, and are listed in Table 4.3-10 of the SFW COP. In addition the South Fork lease area has been identified by NOAA as containing essential fish habitat (EFH) for a number of fish species, including eggs, larvae, juvenile and adults that are listed in Table 7 of Appendix O - Essential Fish Habitat Assessment of the SFW COP. Within Section 2.4 it states “EFH and EFH-designated species will be affected by construction, installation, decommissioning, and O&M of the SFWF and SFEC based in part on the life stage and habitat-type of the organism at the time of various project activities.” See SFW COP Appendix O at 2-31. Much of this EFH is associated with the glacial moraine geology and bottom structure within the SFW project site, and the glacial moraine issue is addressed within enforceable policy section § 11.10.2(B).

Given the project impacts described within the coastal effects section, the glacial moraine impacts identified herein and the high likelihood that the associated sensitive habitat areas will be impacted by construction, installation, decommissioning, and operation and maintenance (O&M) of the SFW project, it is necessary for the project alternative as recommended by CRMC staff to meet this enforceable policy whereby the Council shall protect sensitive habitat areas. We conclude that absent the CRMC staff recommended project alternative, as described below in

enforceable policy § 11.10.2(B), to minimize the size of the SFW project to meet the purpose and need, the project is not consistent with this enforceable policy.

§ 11.10.2(B)

The Council has designated the areas listed below in § 11.10.2(C) of this Part in state waters as Areas of Particular Concern. All large-scale, small-scale, or other offshore development, or any portion of a proposed project, shall be presumptively excluded from APCs. This exclusion is rebuttable if the applicant can demonstrate by clear and convincing evidence that there are no practicable alternatives that are less damaging in areas outside of the APC, or that the proposed project will not result in a significant alteration to the values and resources of the APC. When evaluating a project proposal, the Council shall not consider cost as a factor when determining whether practicable alternatives exist. Applicants which successfully demonstrate that the presumptive exclusion does not apply to a proposed project because there are no practicable alternatives that are less damaging in areas outside of the APC must also demonstrate that all feasible efforts have been made to avoid damage to APC resources and values and that there will be no significant alteration of the APC resources or values. Applicants successfully demonstrating that the presumptive exclusion does not apply because the proposed project will not result in a significant alteration to the values and resources of the APC must also demonstrate that all feasible efforts have been made to avoid damage to the APC resources and values. The Council may require a successful applicant to provide a mitigation plan that protects the ecosystem. The Council will permit underwater cables, only in certain categories of Areas of Particular Concern, as determined by the Council in coordination with the Joint Agency Working Group. The maps listed below in § 11.10.2(C) of this Part depicting Areas of Particular Concern may be superseded by more detailed, site-specific maps created with finer resolution data.

SFW Response: The SFWF (and SFEC) is consistent with this policy. The SFWF (and SFEC) is located in federal waters, but within the RI Ocean SAMP study area, and was sited to avoid Areas of Particular Concern. When avoidance is not possible, protection measures will be employed to avoid or minimize impacts to Areas of Particular Concern.

CRMC Analysis: CRMC designated APC in state waters include: areas with unique or fragile physical features, or important natural habitats; areas of high natural productivity, among other attributes, and glacial moraine. In accordance with Ocean SAMP enforceable policy § 11.10.2(C)(3) areas of glacial moraine within state waters are defined as Areas of Particular Concern (APC) because they contain complex and valuable habitats for fish and other marine life that are important to commercial and recreational fishermen. The SFW project is located on a terminal glacial moraine that the SFW COP defines as a “high boulder hazard area.” See COP at 4-79. In addition, during the execution of the 2017 geophysical survey for the SFW project, potentially challenging seabed conditions were detected that led to the decision to shift the wind farm area eastward. Multi-beam geophysical survey data identified the presence of dense cobble, rock, and boulders on the seabed in the western-most region of the originally proposed SFW

survey area. *Id* at 2-7. In other words, the expansion of the proposed project area eastward was to avoid dense cobble, rock, and boulders, which constitute glacial moraine.

The SFW project is located on glacial moraine and the lease area has similar characteristics as described for CRMC designated APC, e.g., glacial moraine, an area with important natural habitat and high natural productivity, and substantial recreational value and high fishing activity. The South Fork DEIS categorizes glacial moraine and coarse sediment under complex habitat because boulders, cobbles, and pebbles dominate the sea floor in these areas. See DEIS at 3-5. And, as described above in Section C there are nine (9) wind turbine foundations located within complex habitat, including both alternative WTGs 16A and 17A, and one (1) WTG and the single OSS foundation are located within potentially complex habitat. See DEIS at 3-6.

On January 16, 2019 CRMC staff issued its 3-month letter required under 15 C.F.R. § 930.77(a)(3) that alerted Ørsted there were likely proposed turbine foundations located within CRMC identified glacial moraines as depicted within §§ 11.10.2(F) and (G) of the Ocean SAMP. The letter requested Ørsted to provide additional information to confirm whether proposed turbine foundations were or were not located within a glacial moraine, a moraine edge or an area of particular concern.

Ørsted engaged Inspire Environmental to review high resolution geological and geophysical survey data completed for the South Fork project and to develop maps depicting glacial moraines and benthic habitats. A report titled *Glacial Moraines and Benthic Habitats: Delineation of Seabed Classification and Benthic Habitats for South Fork Wind Farm and Export Cable* (Inspire report) was provided to the CRMC on March 19, 2020 (the last iteration of the Inspire report is dated November 23, 2020). See Appendix X. Based on review of the Inspire report CRMC staff alerted Ørsted on March 24, 2020 that there were at least 5 turbine foundations located within CRMC designated APC and as such were presumptively excluded in accordance with the enforceable policies. CRMC staff also advised Ørsted that pursuant to the enforceable policies they would need to demonstrate that there are no practicable alternatives that are less damaging in areas outside of the APC and that all feasible efforts have been made to avoid damage to APC resources and values and that there will be no significant alteration of the APC resources or values. See Ocean SAMP § 11.10.2(B).

The Inspire report notes that the proposed turbine foundations 1, 8, 9, 10, the two alternative turbine foundations (16A and 17A) along with sections of the inter-array cable are located within glacial moraine (a total of six foundations). At the request of CRMC, Dr. John King and Dr. Bryan Oakley reviewed the Inspire report and provided comments on the methodology used to classify bottom habitat and recommendations for relocating turbine foundations and associated inter-array cable to avoid or minimize placement within glacial moraine. Ørsted has indicated that they intend to microsite turbine foundations within the permissible distance of 500 feet pursuant to BOEM's regulations at 30 C.F.R. § 585.634 in an effort to avoid or minimize impact to glacial moraine to the extent feasible given ongoing

regulatory consultations and any engineering or installation constraints. And, given the complex nature of the SFW site geology, it is entirely possible that engineering constraints may limit micro-siting capability, thereby limiting the usefulness of micro-siting to reduce impacts. In addition, under the DEIS Fisheries Habitat Impact Minimization Alternative, BOEM would require the developer to exclude certain WTGs and associated cable locations within complex habitats should micro-siting not be possible to maintain a uniform east–west and north–south grid of 1 × 1 NM spacing between WTGs with diagonal transit lanes of at least 0.6 NM wide. See DEIS at 2-9.

The SFW turbine foundation layout is consistent with the offshore wind industry’s November 2019 proposed 1 x 1 NM uniform grid wind farm layout. See Appendix X. In the figure below CRMC staff has identified several SFW turbine foundations and associated inter-array cables located within glacial moraine that would be designated as APC in state waters, as defined at Ocean SAMP § 11.10.2(C)(3). Based on this information Ørsted has not sited foundations and inter-array cables to avoid glacial moraine (APC) as asserted within their consistency certification. The CRMC enforceable policy at § 11.10.2(B) presumptively excludes all offshore development located within APC, which includes glacial moraine. The exclusion, however, is rebuttable if the applicant can demonstrate by clear and convincing evidence that there are no practicable alternatives that are less damaging in areas outside of the APC, or that the proposed project will not result in a significant alteration to the values and resources of the APC, and that “all feasible efforts have been made to avoid damage to the APC resources and values.”

BOEM anticipates direct effects to essential fish habitat as a result of the SFW project footprint, the SFEC and surrounding areas that could be measurably affected by project construction and installation. See DEIS at 3-4. In addition, the SFW project is sited on Cox Ledge, an area of concern for federal fishery managers because it provides important habitat for commercially important species, including spawning habitat for Atlantic cod. As we note within the CRMC South Fork Wind - Coastal Effect Analysis, the SFW project is located on Cox Ledge, one of the most important areas in all of Rhode Island Sound for species richness and biodiversity, and an area identified by NOAA where Atlantic cod are known to aggregate and spawn. The CRMC Ocean SAMP makes repeated note of the importance of Cox Ledge, especially in Chapter 5 – Commercial and recreational Fisheries. NOAA suggests that the Cox Ledge area supports a genetically differentiated spawning group of the regional Atlantic cod population (NOAA 2020a). The available information and scientific observations supports NOAA’s finding that Cox Ledge contains significant and essential fish habitat, especially for Atlantic cod. Of the six criteria that define CRMC Areas of Particular Concern in § 11.10.2(A), at least four of these characteristic are applicable to the SFW project area. These include: areas with unique or fragile physical features, or important natural habitats; areas of high natural productivity; areas of substantial recreational value; and areas of high fishing activity.

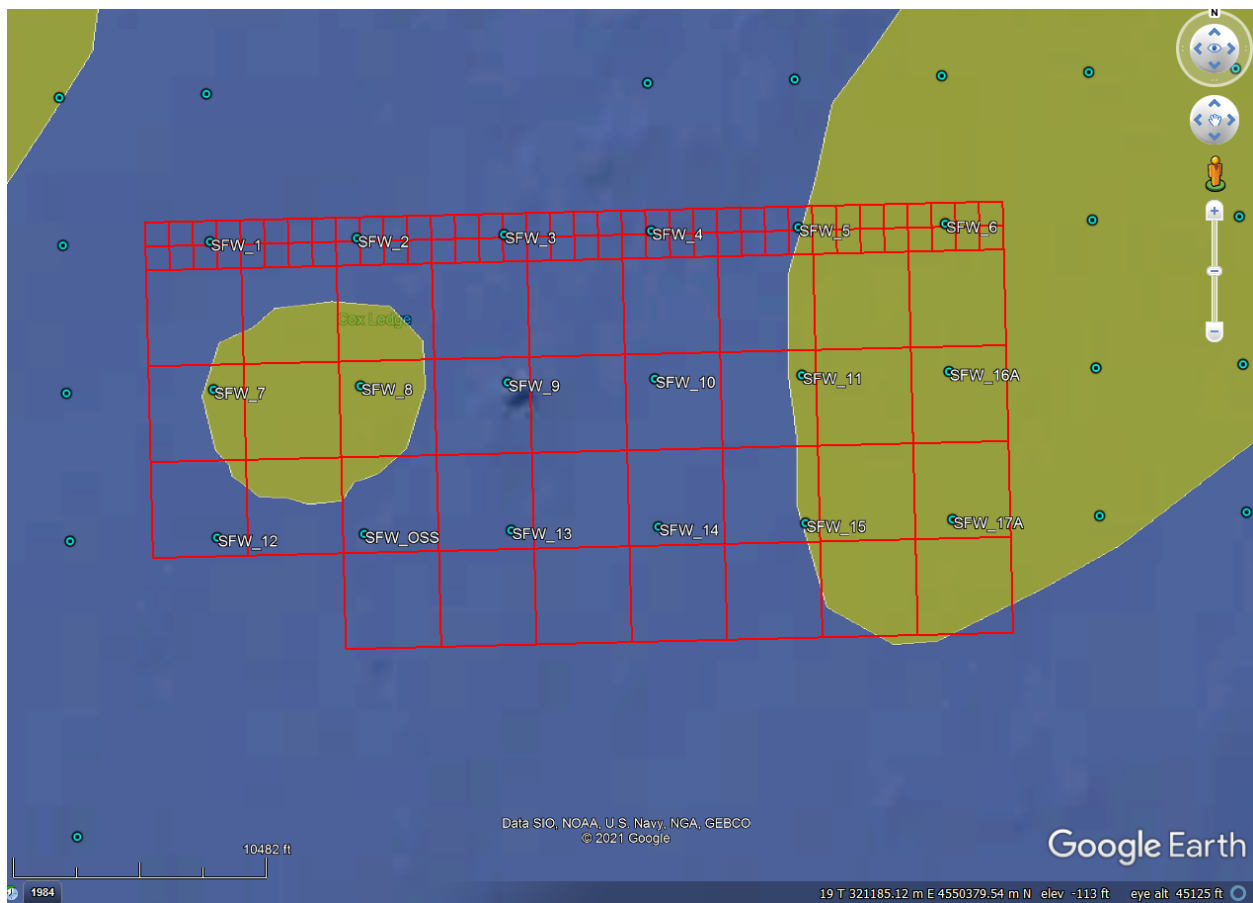


Figure 2. South Fork Wind turbine locations (based on wind industry 1 x 1 uniform grid layout provided by Ørsted on 1/28/20) within the OCS-A 0517 lease area represented by red lines. The yellow shaded polygon areas are glacial moraine identified by the CRMC and meet the requisite criteria as Areas of Particular Concern (APC) in the CRMC enforceable policy.

When the 15 turbine SFW project consistency certification was filed with the CRMC in October 2018, the project was located within lease OCS-A 0486 (Deepwater Wind lease). However, 15 months after BOEM initiated development of the SFW DEIS and CRMC had begun its federal consistency review, Ørsted submitted a request to BOEM on January 16, 2020 to assign a portion of Lease OCS-A 0486 (97,498 acres) to a different entity, DWSF. The lease assignment was approved by BOEM on March 23, 2020, and segregated the area assigned from Lease OCS-A 0486 and created a new much smaller lease assignment OCS-A 0517 consisting of 13,700 acres. In so doing, however, the newly assigned lease area was essentially the same boundary as the SFW project area, and unnecessarily restricted potential project alternatives to be considered under BOEM’s EIS, such as relocating turbines out of glacial moraine or outside of the project boundary, to avoid or minimize impacts to Cox Ledge resources and essential fish habitat. Prior to BOEM’s approval of the newly assigned lease area OCS-A 0517, cooperating agencies involved in the BOEM EIS process, including the CRMC, had advocated for an alternative for the SFW project that would have relocated turbines elsewhere within the OCS-A 0486 lease to reduce impacts to Cox Ledge habitat and resources. However, the CRMC and other

state and federal cooperating agencies on the SFW project learned of the lease reassignment request after the fact, and were not able to provide comment or perspective on the lease reassignment request. BOEM provides an explanation within Table 2.1.5-1 Alternatives Considered but Dismissed from Detailed Analysis. See DEIS at 2-12. Nevertheless, in our opinion Ørsted created their own hardship in this matter by segregating the 0517 lease area from the much larger 0486 lease during BOEM's ongoing DEIS development process, and thus eliminated the feasibility for an alternative to relocate SFW turbine foundations to avoid damage to glacial moraine (APC) resources and values.

The SFW COP and DEIS indicate that the purpose of the SFW project is to develop a commercial-scale offshore wind energy facility in the area of the lease with wind turbine generators (WTGs), an offshore substation, and one transmission cable making landfall in Suffolk County, New York. The project would contribute to New York's renewable energy requirements, particularly the state's goal of 9,000 MW of offshore wind energy generation by 2030. The goal of the developer is to fulfill its contractual commitments to the Long Island Power Authority (LIPA) pursuant to a power purchase agreement executed in 2017 resulting from LIPA's technology-neutral competitive bidding process.

The purchase and power agreement (PPA) between LIPA and Deepwater Wind South Fork, LLC executed on February 6, 2017 and subsequently amend in 2018 requires SFW, LLC to deliver 130 MW (previously 90 MW) of renewable wind energy to the LIPA (<https://www.lipower.org/wp-content/uploads/2018/12/4-Recommendation-for-2019-Budget-Approval-1.pdf>). In addition, the DEIS indicates that the interconnection at the East Hampton substation is currently limited to no more than 130 MW, which matches the energy production requirement of the PPA with LIPA. See DEIS at D-3. Since the SFW project maximum design size specifications within the COP and as described in the DEIS allows up to a 12 MW WTG, then it stands to reason that only eleven (11) WTGs are required to meet the purpose and need of the project and fulfill SFW's obligation to the LIPA under their PPA. Offshore wind industry technology is rapidly changing and larger wind turbine generators are being planned for new projects. In fact, late last year Vineyard Wind requested BOEM to consider use of a 14 MW WTG (upgraded from previously planned 9.6 MW units) for the Vineyard Wind 800 MW project. BOEM has now issued its Final EIS and record of decision in the Vineyard Wind matter as of May 10, 2021. Therefore, it is highly likely that SFW will use the 12 MW WTGs for its project, which is within the range considered by the COP. By using the larger 12 MW units for the SFW project the developer could further reduce impacts within the SFW lease on Cox Ledge by reducing the number of turbine foundations from 15 to 11, thus eliminating turbine foundations that are located within glacial moraine (APC) and to avoid damage to APC resources and values. In April of this year BOEM submitted its *South Fork Wind Farm and South Fork Export Cable - Essential Fish Habitat Assessment with NOAA Trust Resources* to the National Marine Fisheries Service (NMFS) as required under federal law. Based on the significant area of glacial moraine complex bottom habitat shown in Figure 3.4.2-1 of the SFW DEIS we anticipate that that several turbine foundation locations will be eliminated for consideration by BOEM consistent with the Fisheries Habitat Impact Minimization Alternative (Section 3.4.2.2.5 of the

DEIS) because micrositing in and of itself will not be sufficient to avoid impacts to glacial moraine and important benthic habitat.

The CRMC enforceable policy at § 11.10.2(B) requires the developer to demonstrate that “all feasible efforts have been made to avoid damage to the APC resources and values.” And, the enforceable policy at § 11.10.2(C)(3) specifies that glacial moraines are important habitat areas for a diversity of fish and other marine plants and animals because of their relative structural permanence and structural complexity. Despite the developer’s intention to microsite turbine foundations locations to the extent feasible in consideration of engineering and installation constraints, several turbine foundations and inter-array cables will still be located within glacial moraine (APC), and accordingly there will be impacts to the resources and values of the glacial moraine and important benthic habitat. It is very likely that engineering constraints will limit the ability to microsite pile foundations, especially because buried boulders present a significant potential hazard to piled foundations at this site. See SFW COP at 4-79.

Given that there are multiple pile foundations and inter-array cables presently proposed within glacial moraine (APC) and the evidence shows that more turbines are proposed than necessary to meet the purpose and need of the SFW project, it is our determination that the developer has not demonstrated that “all feasible efforts” have been made to avoid damage to the APC resources and values. BOEM may approve fewer turbine foundations locations than currently proposed by the developer under the DEIS Fisheries Habitat Impact Minimization Alternative in consultation with NMFS concerning essential fish habitat issues. It is likely that NMFS will recommend that specific turbine foundations be removed for consideration by BOEM due to significant impacts to essential fish habitat within the SFW lease area. In our opinion minimizing the number of WTG foundations and associated inter-array cables within complex bottom habitat, and therefore minimizing the impact on the APC values and resources, is a feasible option that allows the developer to meet the SFW project generation needs for 130 MW. Thus, the developer could select the 12 MW wind turbine generators as provided within the project design envelop and would only need to install 11 turbine foundations to meet the purpose and need of the SFW project and meet its contractual obligation with LIPA. This alternative would eliminate the currently proposed turbine foundations and inter-array cables that impact glacial moraine and important benthic habitat. Thus, if this alternative is adopted the CRMC could find that the developer has demonstrated that “all feasible efforts have been made to avoid damage” to the glacial moraine (APC) resources and values. **However, based on the facts herein the CRMC finds that the presently proposed SFW project is not consistent with the CRMC enforceable policy § 11.10.2(B).**

Absent a conditional concurrence that requires the recommended project minimization alternative, CRMC staff would recommend an **objection** to the SFW consistency certification as the project does not meet the Ocean SAMP enforceable policy § 11.10.2(B) because the developer has not demonstrated that all feasible efforts have been made to avoid damage to the glacial moraine (APC) resources and values.

Summary

Despite project modifications proposed by the developer, the SFW project will have adverse impacts on Rhode Island coastal uses and resources during construction, operation and decommission phases. The SFW DEIS indicates that there are unavoidable impacts that will result from the SFW project to include: (1) a disruption to access or temporary restriction in port access or harvesting activities due to construction of offshore project elements; (2) a disruption to harvesting activities during operations of offshore wind facilities; (3) changes in vessel transit and fishing operation patterns; and (4) changes in risk of gear entanglement or target species. In addition, the SFW developer recognizes that the construction and decommissioning phases, in particular, will present impacts that require mitigation for impacted commercial and recreational fishing activities under the Ocean SAMP. Accordingly, mitigation measures are required in accordance with enforceable policies §§ 11.10.1(G) and (H).

As noted above in discussion of Ocean SAMP policy 11.10.2(B), it is the conclusion of CRMC staff that the developer has not demonstrated that “all feasible efforts have been made to avoid damage” to the glacial moraine (APC) resources and values. The applicant created their own hardship by requesting a lease reassignment (to create the 13,700 acre OCS-A 0517) that then limited a potential alternative to relocate turbines outside of the project area to avoid glacial moraine and sensitive marine habitat. Despite the proposed micrositing of turbine foundations there will still be damaging impacts to glacial moraine by foundation and inter-array cable installation that cannot be successfully relocated (micro-sited) outside of glacial moraine. However, the CRMC proposed project alternative using a maximum of 11 turbine foundations and the 12 MW WTGs listed within the COP will further minimize impacts to glacial moraine, as few foundations and inter-array cable would be installed within glacial moraine. In addition, there would be a reduction in construction activity including injurious pile driving. Thus, with the project minimization alternative the developer could demonstrate that “all feasible efforts have been made to avoid damage” to the glacial moraine (APC) resources and values as required by enforceable policy § 11.10.2(B).

The CRMC proposed project minimization alternative obviates the need for the CRMC to object to the SFW project on grounds of not meeting CRMC enforceable policies. In addition, the alternative allows the South Fork Wind, LLC to proceed with a viable renewable energy project that meets its purpose and need to deliver 130 MW of renewable electric energy to New York State and meet its contractual obligations with the LIPA. Furthermore, the CRMC proposed project minimization alternative advances the national interest in pursuit of substantial offshore renewable energy goals.

The opinion of CRMC staff is that acceptance of the presently offered mitigation proposal would not fully mitigate the adverse impacts from the SFW project. However, the mitigation proposal combined with the CRMC staff recommended project minimization alternative described herein would satisfy the mitigation requirements pursuant to Ocean SAMP enforceable policy §§ 11.10.11(G) and (H). Absent adoption of these recommendations, CRMC

staff would have to recommend an objection to the South Fork Wind project because it would not be consistent with the Ocean SAMP enforceable policies.

Recommendations

1. The Council should require that the developer provide their proposed mitigation package to include the most recent compensatory mitigation offer to meet the requirements of Ocean SAMP enforceable policies §§ 11.10.1(G) and (H).
2. The Council should request the developer to enter into a stay agreement with the CRMC with a final consistency decision issued by the CRMC no later than June 30, 2021 (the current due date is June 1). The purpose of the stay agreement would be to provide sufficient time for a mitigation implementation agreement to be drafted, finalized and executed so that it can be included with the CRMC federal consistency decision on or before June 30.
3. CRMC staff recommend a “Conditional Concurrence” pursuant to the federal consistency regulations at 15 C.F.R. 930.4 to include a CRMC proposed project minimization alternative that would modify the SFW project to a maximum of eleven (11) turbine foundations using the 12 MW turbine generators to demonstrate that “all feasible efforts have been made to avoid damage” to the glacial moraine (APC) resources and values. This alternative allows the developer to meet the Ocean SAMP enforceable policy for Areas of Particular Concern at § 11.10.2(B) and also to meet the purpose and need of the proposed project to deliver 130MW of renewable wind energy as contractually obligated by South Fork Wind, LLC to the Long Island Power Authority.