Update to "Economic Impact of South Fork Wind to Rhode Island Commercial Fisheries"

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We have made the following adjustments to the September 2020 report titled "Economic Impact of South Fork Wind to Rhode Island Commercial Fisheries" (hereafter referred to as "the report"):

- Adjusted lobster and Jonah crab landed value to account for dockside sales
- Modified the stock effects assumptions from construction activities on the WLA
- Adjusted the application of multipliers to capture downstream impacts
- Added impacts to the charter fishing industry

Dockside sales of lobster and Jonah crab

The average annual value of lobster and Jonah crab landed from the WLA and 180m ECC, respectively, are reported as $77,948 and $10,949 in the report. Those values include an adjustment of the underlying NOAA data to account for the assumption that the NOAA data capture only 40% (by weight) of actual lobster and Jonah crab landings. We have now applied in addition the 15% premium suggested by the FAB (p. 2 of T. Sproul's Nov. 24, 2020 "Calculations for RI FAB Mitigation Summary Slides and Proposal," hereafter referred to as "the Sproul memo.")

The net effect of this adjustment is an increase in baseline landed value per year of $11,692 in the WLA and $1,644 in the ECC, or an average annual value of lobster and Jonah crab landings of $89,640 from the WLA and $12,593 from the ECC.

Stock effect from construction activities on the WLA

The report assumes (scenario 1, p. 18) that construction activities result in a 75% reduction in landings from the WLA over 1 year because of the effect of construction activity on stocks. (This is in addition to the assumption that fishing activity is curtailed by 50% in the WLA during 8 months of construction work.) Our updated assessment retains the assumption regarding fishing activity (effectively, no fishing in 50% of the WLA during 8 months of construction activities) and replaces the 75%/1year stock effect assumption with the following assessment as a result of discussions during mitigation. This assessment is based on the most likely pile driving scenario for the South Fork Wind project: 11 m monopiles, each installed within 24 hours, using a 4,000 kJ hammer, and 10 dB of noise attenuation.

- We assume conservatively that 10% of the lobster and scallop populations within the WLA are adversely affected by pile driving noise during construction time only, and thus lost to fishing. This is based on the "mortality and potential mortal injury" 24-hour

exposure threshold of 219 dB for "fish without swim bladders," the closest approximation to lobster/scallops (Popper *et al.* 2014; Denes *et al.* (JASCO) 2018, p. F-39). This level of exposure will extend no more than 120 m from tower locations, a radius that covers about 1% of the WLA footprint. To be conservative, we increase the estimate of the effect by a factor of ten, to 10%.

- We further assume conservatively that mobile species (finfish) will leave all areas where pile driving noise exceeds 160 dB. There is no scientific evidence that the 150 dB threshold sometimes cited for "temporary behavioral changes" (Cal Trans 2015) leads to substantive relocation of finfish; and even 160 bB is far below any documented injury threshold. The maximum range for pile driving noise in the South Fork setting is 4,840 m for 160 dB (Denes *et al.* (JASCO) 2020, p. G-52). We therefore assume conservatively that all finfish leave the WLA and a 5 km buffer zone around the WLA for the duration of pile driving (two months) and return after a further two months (total of four months). To estimate the value associated with this effect, we obtained data from NOAA on average annual landings from a region enclosed by a 5 km buffer around the South Fork WLA. (The value of landings reported by NOAA for this buffer area is similar, in per-unit-area terms, to that of the WLA itself.)
- We also account for some double-counting between these stock effects and the assumption of no fishing in 50% of the WLA during construction activities. In the areas of the WLA where no fishing takes place during construction, the temporary dislocation of finfish is not relevant to landings. To be conservative, we do not account for double-counting of effects in the overlap between the 5km buffer around the WLA and the ECC.

The net effect of this adjustment is an increase in the exposed present value of landings due to construction effects, including direct and indirect impacts, by about $75,000.

<u>Multiplier for downstream impacts</u>

We adopt the FAB's suggestion (pp. 3-4 of the Sproul memo) that the multiplier on RI landings should be 0.985 to account for both upstream effects and downstream effects to seafood processors. We apply this to all landings except lobster and Jonah crab, which are subject to dockside sales and, in most cases, minimal processing. For lobster and Jonah crab landings, we continue to apply the RI IMPLAN multiplier of 0.606.

The net effect of this adjustment is an increase of about $21,800 in RI total exposed value.

<u>Impacts to RI charter fishing</u>

We have added impacts associated with RI-based charter fishing trips that may be exposed to construction and decommissioning activities at the South Fork WLA. According to the Kirkpatrick *et al.* (BOEM, 2017b) study (vol. 2, p. 138, Table III-xii), the average annual gross revenue from for-hire (charter) fishing boats based in RI from 2007 to 2012 was $15,606,829, of which $1,039,999 is considered exposed to general wind energy area development, that is,

associated charter boat trips go within 1nm of a wind energy area. We assume no net adverse impact on charter fishing during the operations phase of the project.

We assume conservatively that all RI charter fishing exposed to wind energy areas is exposed to those referred to in the BOEM (2017) report as the MA/RI WEA; in fact, some RI charter fishing may be exposed to other wind energy areas to the southeast of the MA/RI area. The South Fork WLA accounts for about 6.75% of the MA/RI wind energy area modeled by the BOEM study; so we estimate the 2010 exposed value as approximately $70,246. We allow for 3% annual growth in this industry and apply a CPI inflator to estimate $112,341 (2019$) in RI charter boat revenue exposed to the South Fork Wind area.

We assume that this value is foregone in the construction and decommissioning years of the project. Although construction and decommissioning activities are expected to extend for only eight months, we use the full annual value in this case. We also apply a multiplier of 0.6 to estimate onshore effects of charter boat activity, based on a study by Steinback (1999).

The net effect of this adjustment is a $221,335 (2019$) increase in RI exposed value.

References

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