Addendum to the CVOW-C Endangered Species Act Biological Assessment

Pursuant to Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, on December 21, 2022, the Bureau of Ocean Energy Management (BOEM) requested formal consultation with the U.S. Fish and Wildlife Service (USFWS) regarding species that may be affected by the approval of a Construction and Operations Plan (COP) for the for the Coastal Virginia Offshore Wind Commercial (CVOW-C) Project, a commercial wind energy facility. This document serves as an addendum to the Biological Assessment (BA).

Since the submission of the BA in December, the Stochastic Collision Risk Assessment for Movement (SCRAM) model was updated. At the request of USFWS, the developer provided new turbine operational data for the model. As a result, BOEM re-ran the SCRAM model for the piping plover, red knot, and roseate tern with the updated information. Tables 1 and 2 summarize the results of the runs. The model input file and SCRAM reports are provided as attachments to this addendum.

Generally, the updated SCRAM results of the analyses for piping plover and roseate tern are similar to those in the December BA. SCRAM predicted that the annual probability of a collision for piping plover and roseate tern as very low, at <0.001 (Table 1) suggesting that collision with turbines is extremely unlikely. However, the results for the Red Knot differed from the results in the December BA. In the most recent model run, SCRAM predicted that the annual probability of a collision was 0.033 (Table 1) suggesting that collision with turbines is not likely. SCRAM also predicted that the average annual number of Red Knot collisions to be less than 1 (Table 1). However, the probability of a collision event during the 33-year operational period is 0.670, (Table 2) and thus possible. Further, the average number of Red Knot collisions were greater than one (Table 2).

The model has multiple built in biases that substantially inflate the estimated number of collisions: 1) SCRAM uses Red Knot population sizes that is larger than the number of birds that are likely to be transiting waters near the US Atlantic offshore leases during fall migration. A recent study found that 81% (118 out 146) of the red knots fitted with radio transmitters could transit the US Atlantic region where offshore leases are located during fall migration (Loring et al. 2020); this suggests that the fall population sizes used in SCRAM are likely biased high by 19 precent. 2) SCRAM uses population sizes and movement data to estimate the number of birds within a 50 km x 50 km grid cell containing the project. In some grid cells, the modeled estimate of the number of birds can be extremely large. For example, in a grid cell for another project, the estimated number of birds during September exceeds the population size of 72,250[1] by more than 10,000 birds, thus leading to wildly inflated estimates of collisions. For these reasons, BOEM believes that the estimated number of red knot collisions are likely biased high and should be interpreted not as absolutes but as a relative number of collisions. For the CVOW-C project, there is the possibility of a Red Knot colliding with a spinning turbine blade during the life of the project; however, BOEM believes that the estimated number of Red Knot collisions are biased high.

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[1] See Table 3 in SCRAM report.

Based on the updated SCRAM model, BOEM's determinations in the BA for piping plovers and roseate terns remain the same where the Proposed Action would not likely to adversely affect (NLAA) piping plovers and roseate terns. However, BOEM has revised its previous determination of NLAA for the red knot and has now determined that the Proposed Action is likely to adversely affect red knots.

Table 1. Annual model outputs. Values greater than one are in bold.

Species	SCRAM	SCRAM
	Probability of collision [a]	**Collisions (95% Prediction Interval) [b]**
Piping Plover	< 0.001	0.022 (0.000 - 0.170)
Red Knot	0.033	0.086 (0.000 - 1.050)
Roseate Tern	< 0.001	0.000 (0.000 - 0.000)

[a] SCRAM report, SCRAM run details, p. 2
[b] SCRAM report, Table 9

Table 2. Life of project (33 years) - Extrapolated from model outputs. Values greater than one are in bold.

Species	Probability of collision [a]	Collisions (95% Prediction Interval) [b]
Piping Plover	0.032	0.7 (0.0 – 5.6)
Red Knot	0.670	**2.8** (0.0 – 34.7)
Roseate Tern	0.032	0.0 (0.0 - 0.0)

[a] Probability $_{life}$ = 1-(1-Probability $_{annual}$)^{Years}
[b] Collisions $_{life}$ = Collisions $_{annual}$ × Years