

## Appendix C: Service's Bayesian Model Output

# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

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### ROCK CREEK WIND FARM CRM MEMORANDUM

**SUBJECT:** RESULTS OF THE COLLISION RISK MODEL FOR ROCK CREEK WIND LLC

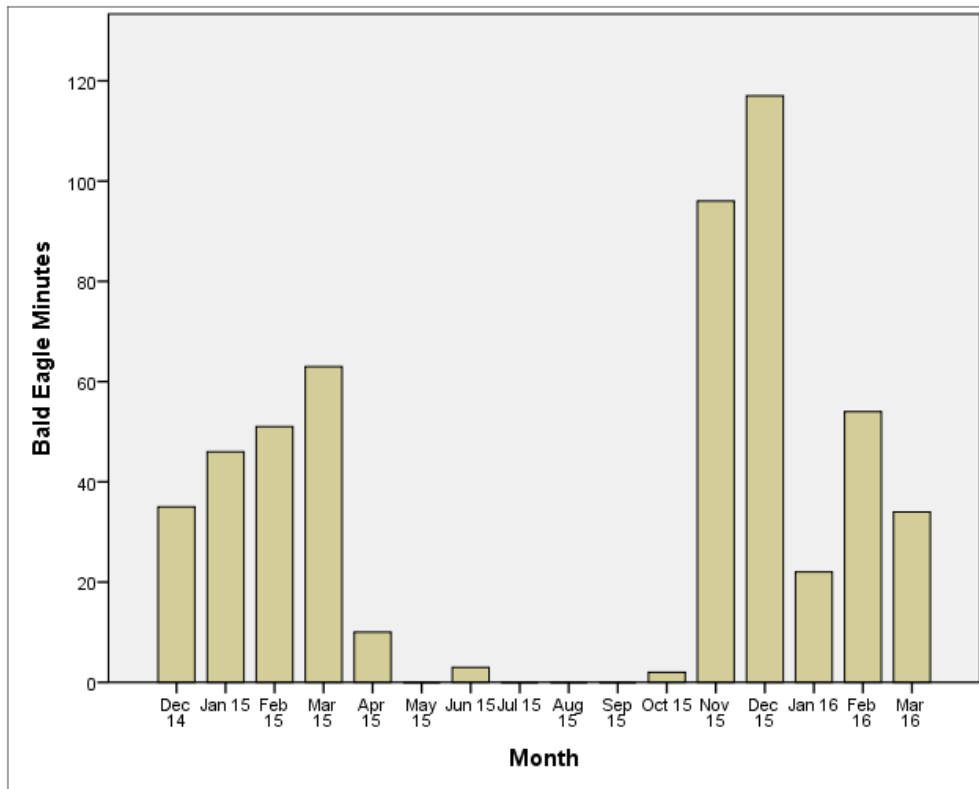
**DATE:** DECEMBER 7, 2018

To predict the total number of incidental take of bald eagles (*Haliaeetus leucocephalis*), I analyzed the project preconstruction bald eagle survey data provided by West Inc. on behalf of Rock Creek Wind Farm on 10/16/2018 using the Service's Collision Risk Model (CRM). The eagle risk was calculated seasonally by using seasonal priors within the model. Seasons were defined based on a high risk and a low risk period. Seasons cutoffs were on the following calendar dates:

High risk = 4/30; Low risk = 10/31

The high risk period represents the migration and wintering period when a large number of eagles are present at the project site (see figure below). The low risk period represents primarily the summer and nesting periods when few resident breeding and non-breeding eagles occasionally use the project site. Total operational hours during daylight were calculated based on eight years of data collected at meteorological towers at the site. This number was then used within the CRM to calculate the bald eagle risk of collision and the eventual take number.

Based on the provided data, we predicted the take number to be 18.17 bald eagles per year at the 80<sup>th</sup> quantile (see attached CRM output). The Service recognizes that the actual take number may indeed be lower during the actual operation of the project; however, this allows us to set aside a conservative level of take from the appropriate LAP and EMU take limits. As more site specific data becomes available from Rock Creek Wind Farm, the Service intends to update the take number at the end of 5 years of permit issuance.



*Figure 1 Eagle minutes at Rock Creek Wind Farm during surveys conducted from 2014-2016.*

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