

This document was compiled by the Regional Assessment of Offshore Wind Development Secretariat. It includes an excerpt from the submission:

Offshore Wind Regional Assessment Requests for Advice: Product Descriptions and Context for Interpretation

Provided by Environment and Climate Change Canada – Canadian Wildlife Service to the Committees for the Regional Assessment of Offshore Wind Development in Nova Scotia and Regional Assessment of Offshore Wind Development in Newfoundland and Labrador

November 30, 2023

The full submission was provided to the Committee in confidence, as per the Committee's [Confidentiality Procedures](#).

3.3.1 Breeding Seabird Foraging Distributions

Product Objective

This series of maps shows foraging distributions of certain colonially-breeding seabirds in Atlantic Canada.

The following data source was used to produce the maps:

- [Ronconi et al. 2022. Predicting seabird foraging habitat for conservation planning in Atlantic Canada: integrating telemetry and survey data across thousands of colonies.](#)

Colony and foraging distribution maps are provided for the following species:

- Atlantic Puffin
- Black Guillemot
- Black-legged Kittiwake
- Common Murre
- Great Black-backed Gull
- Herring Gull
- Northern Gannet
- Razorbill
- Roseate Tern
- Thick-billed Murre
- Arctic Tern and Common Tern

Methodology

These maps display the locations of bird colonies, by species, along with foraging distributions. The Atlantic seabird colony database was used to extract the largest colony for each species between 1996 and 2016. Each species' existing tracking data (GPS, PTT) was obtained from 2005-2016. All tags were deployed on breeding adults. Analysis was limited to breeding seasons. Colony-centered distribution models were built. These maps were developed only for species with sufficient tracking data, as per Ronconi et al., 2022. Colony size is indicated by green circles, with circle size representing the maximum number of individuals per colony as a percentage of the total number of individuals in the region. Foraging distribution is represented by a colour gradient standardized from 0 – 1. The results for Leach's Storm-petrel were not included because the foraging distribution model for storm-petrels does not capture the foraging levels of the smaller colonies. Leach's Storm-petrel foraging distributions will be shown in a future data product (see Section 4.4). Razorbill and Atlantic Puffin are being redisplayed at the Nova Scotia and Newfoundland and Labrador Study Area scale, to account for high density breeding colonies.

Context and Interpretation

Spatial Distribution: Includes colony location and foraging distribution data for select species in Atlantic Canada (Nova Scotia, Newfoundland and Labrador, New Brunswick, and Prince Edward Island). The risks of impacting foraging locations of the species represented on the map are higher

in areas shaded yellow. Colony location and size (maximum counts of each species at a given colony) is indicated as a red circle, with larger circles indicating higher counts of individuals at that colony.

Temporal Distribution: Analysis was done using data collected during the breeding season. Birds were tagged at and tracked from their breeding colonies.

Assumptions and Caveats

- The modelling approach assumes that foraging patterns at one or more colonies are representative of the species more generally. However, seabirds can show intraspecific specificity in foraging behaviour.
- The modelling approach assumes that seabird census data is complete and accurate. However, many colonies are monitored opportunistically and therefore counts may not be accurate.
- These models should be further refined prior to making local and project-specific management action.
- Newer and more accurate GPS data exist for terns, which would allow for more precise modelling; however, these data were not available before the November 30, 2023 deadline.
- Some species have large colonies in certain geographic locations in the region. This affects the predictive densities of the foraging distributions. Rescaling the distributions to within the individual study areas may help to reveal more informative patterns. Some species have poor data outputs due to insufficient tracking data. Therefore, additional tracking data should be collected for these species, including Common Tern, Arctic Tern, Black Guillemot, Black-legged Kittiwake, and Great Black-backed Gull.





















