

# Thick-billed Murre

Class: Aves  
Order: Charadriiformes

*Uria lomvia*

Note: Several subspecies are recognized worldwide, but only one (*Uria lomvia arra*) occurs in Alaska.

**Review Status:** Peer-reviewed

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## Conservation Status

NatureServe: Agency:

G Rank: G5 ADF&G: Species of Greatest Conservation Need IUCN: Least Concern Audubon AK:

S Rank: S4 USFWS: BLM:

| Final Rank  |           |       |
|---|-----------|-------|
| Conservation category: <b>VII. Yellow</b>                               |           |       |
| low status and either high biological vulnerability or high action need |           |       |
| Category  | Range     | Score |
| Status  | -20 to 20 | -11   |
| Biological  | -50 to 50 | -10   |
| Action  | -40 to 40 | -16   |
| <b>Higher numerical scores denote greater concern</b>                   |           |       |

**Status** - variables measure the trend in a taxon’s population status or distribution. Higher status scores denote taxa with known declining trends. Status scores range from -20 (increasing) to 20 (decreasing).

**Score**

*Population Trend in Alaska (-10 to 10)*

-6

Ten-year data suggest a stable to slightly increasing trend (Goyert et al. 2017; Dragoo et al. 2019). Not all breeding colonies are monitored and some, such as the colony on St. Paul Island, seem to be declining (Dragoo et al. 2019). It is important to note that the data used to derive these trends are counts of attendance at breeding colonies. Colony attendance may vary annually in a way that isn't necessary related to population size i.e. fewer birds returning to a colony in a poor year even though the number of birds in the population itself hasn't changed.

*Distribution Trend in Alaska (-10 to 10)*

-5

Unknown, but likely stable. Colonies for which long-term data are available have remained active (Dragoo et al. 2019).

Status Total: -11

**Biological** - variables measure aspects of a taxon’s distribution, abundance and life history. Higher biological scores suggest greater vulnerability to extirpation. Biological scores range from -50 (least vulnerable) to 50 (most vulnerable).

**Score**

*Population Size in Alaska (-10 to 10)*

-10

>25,000. The most recent estimate is >2.9 million individuals (Goyert et al. 2017; adjusted upwards from estimate in Denlinger et al. 2006 based on trends on monitored colonies).

|   |     |
|---|-----|
| <i>Range Size in Alaska (-10 to 10)</i>   | -2  |
| Breeding colonies are on isolated islands in the Bering Sea and the Gulf of Alaska, including the Aleutian and Pribilof Islands (Gaston and Hipfner 2000). Rarely breeds on the coastal mainland. Over winters in open water in the North Pacific Ocean from the Bering Sea to British Columbia (Gaston and Hipfner 2000; Orben et al. 2015c). Breeding range is more restricted than wintering range and is estimated to cover ~64,600 sq. km, calculated in GIS and based on range map from ACCS (2017a).   |     |
| <i>Population Concentration in Alaska (-10 to 10)</i>   | -6  |
| Possibly between 25-250 breeding colonies in Alaska (Denlinger 2006; USFWS 2013d). Defining the spatial extent of breeding colonies is difficult, especially when colonies are not monitored annually or when multiple colonies occur nearby.   |     |
| <i>Reproductive Potential in Alaska</i>   |     |
| <u>Age of First Reproduction (-5 to 5)</u>  | 1   |
| Unknown for Alaska. In Arctic Canada, mean breeding age for females is 5.1 yr ± 1.2 SD (Gaston and Hipfner 2000).   |     |
| <u>Number of Young (-5 to 5)</u>  | 5   |
| Females lay a single egg per year and typically breed every year once they attain sexual maturity (Gaston and Hipfner 2000). Because not all eggs are successful, the average number of live produced per adult female is <1; data from six islands in Alaska estimate long-term averages ranging from 0.25 to 0.65 chicks/female (Dragoo et al. 2019). We therefore rank this question as A- <1 offspring.   |     |
| <i>Ecological Specialization in Alaska</i>  |     |
| <u>Dietary (-5 to 5)</u>  | 1   |
| Deep divers that feed on small fishes (e.g. young pollock, capelin, sandlance) and marine invertebrates such as euphausiids and squids (Iverson et al. 2007; Sinclair et al. 2008; Ito et al. 2010; Kokubun et al. 2010; Renner et al. 2012; Paredes et al. 2015; Barger et al. 2016). Thick-billed murre have a flexible diet that includes a range of prey species and that is adaptable to spatial and temporal changes in prey availability (Woo et al. 2008; Kokubun et al. 2010; Benoit-Bird et al. 2011; Renner et al. 2012; Harding et al. 2013; Orben et al. 2015c; Paredes et al. 2015; Barger et al. 2016). However, because the availability of these prey items are sensitive to changes in oceanographic conditions, with repercussions for the thick-billed murre's ecology, we rank this question as B- Moderately adaptable. |     |
| <u>Habitat (-5 to 5)</u>  | 1   |
| Nests on cliff ledges on remote islands and, to a lesser extent, on mainland coastal sites (Squibb and Hunt 1983; Gaston and Hipfner 2000; Gibson and Byrd 2007). Forages and overwinters at sea in coastal and offshore waters (Hatch et al. 2000; Harding et al. 2013; Orben et al. 2015c; Kokubun et al. 2018). Distribution is influenced by a variety of oceanographic factors including sea ice, temperature gradients, and dynamic water systems e.g. fronts, upwelling (Gaston and Hipfner 2000; Kokubun et al. 2008; Hunt et al. 2014).  |     |
| Biological Total:   |     |
|   | -10 |
| <b>Action</b> - variables measure current state of knowledge or extent of conservation efforts directed toward a given taxon. Higher action scores denote greater information needs due of lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs).  |     |
| <b>Score</b>  |     |
| <i>Management Plans and Regulations in Alaska (-10 to 10)</i>   | -10 |
| Protected under the Migratory Bird Treaty (MBTA 1918). Subsistence harvest is permitted and   |     |

subject to regulations (AMBCC 2020). Harvest data do not differentiate between common (*Uria aalge*) and thick-billed murre. Collectively, these species are some of the most commonly harvested seabirds (Naves 2018).

*Knowledge of Distribution and Habitat in Alaska (-10 to 10)*

-10

Distribution of colonies is well-documented with knowledge of habitat associations (USFWS 2013d; references in Habitat section). At-sea distribution has been documented through shipboard surveys and telemetry data (e.g. summary table in Jahncke et al. 2008; compiled in Drew and Piatt 2015; references in Dietary and Habitat sections). Some knowledge of wintering and migratory distribution (Hatch et al. 2000; Orben et al. 2015c; Takahashi et al. 2020).

*Knowledge of Population Trends in Alaska (-10 to 10)*

2

Some knowledge of trends, but survey methods are currently inadequate for detecting statewide trends with certainty. Data used to derive these trends are counts of attendance at breeding colonies. Some breeding colonies on the Alaska Maritime National Wildlife Refuge are regularly monitored, while counts at other colonies (e.g. Cape Thompson, Cape Newenham, West Nunivak Island) date back to the late 1990s (Goyert et al. 2017). At many colonies, only a small subset of the colony is actually counted. Moreover, colony attendance may vary annually in a way that isn't necessary related to population size i.e. fewer birds returning to a colony in a poor year even though the number of birds in the population itself hasn't changed. Finally, it can be difficult to distinguish between thick-billed murre and common murre (*Uria aalge*) at mixed-species colonies (Denlinger 2006).

*Knowledge of Factors Limiting Populations in Alaska (-10 to 10)*

2

Some knowledge of factors affecting population size and distribution. The reasons why some colonies e.g. St Paul Island are declining are not fully known. Prey availability and prey quality are thought to be the ultimate mechanisms influencing reproductive success, population dynamics, and distribution (reviewed in Renner et al. 2014; Paredes et al. 2015; Sydeman et al. 2017a; Goyert et al. 2018). Adult survival and body condition during the non-breeding season are likely important components of long-term population dynamics (Benowitz-Fredericks et al. 2008; Byrd et al. 2008a; Harding et al. 2013; Renner et al. 2014). Neither predation nor nest site availability are thought to be limiting Bering Sea colonies (Kitaysky et al. 2000; Byrd et al. 2005; Byrd et al. 2008b). To some extent, thick-billed murre seem able to maintain reproductive success even in years of low prey availability or in poor quality habitats (Kitaysky et al. 2000; Byrd et al. 2008a; Goyert et al. 2018; Kokubun et al. 2018). However, the impacts of this "buffering" e.g. on other demographic parameters or on lifetime fitness are unknown (Byrd et al. 2008a; Renner et al. 2014).

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Action Total: -16

**Supplemental Information** - variables do not receive numerical scores. Instead, they are used to sort taxa to answer specific biological or management questions.

|                                       |                          |
|---------------------------------------|--------------------------|
| <b>Harvest:</b>                       | Substantial, regulations |
| <b>Seasonal Occurrence:</b>           | Year-round               |
| <b>Taxonomic Significance:</b>        | Monotypic species        |
| <b>% Global Range in Alaska:</b>      | >10%                     |
| <b>% Global Population in Alaska:</b> | 25-74%                   |
| <b>Peripheral:</b>                    | No                       |

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