Arctic Tern

Sterna paradisaea

Class: Aves
Order: Charadriiformes

Review Status: Peer-reviewed **Version Date:** 08 January 2019

Conservation Status

NatureServe:	*Agency:*		
G Rank: G5	ADF&G: Species of Greatest Conservation Need	IUCN: Least Concern	Audubon AK: Watch
S Rank: S4S5B	USFWS: Bird of Conservation Concern	BLM:	

Final Rank

Conservation category: **VIII. Blue**

unknown status and low biological vulnerability and action need

Category	Range	Score
Status	-20 to 20	0
Biological	-50 to 50	-34
Action	-40 to 40	-16

Higher numerical scores denote greater concern

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) 0

Trend varies by region. Decreasing in the Gulf of Alaska, including on the Kodiak Archipelago (Corcoran 2013) and in Prince William Sound (Agler et al. 1999; Cushing et al. 2018). Increasing on the Yukon-Kuskokwim Delta (Platte and Stehn 2015). Stable on the Arctic Coastal Plain since 2000 (Stehn et al. 2013). Trends are unavailable for interior Alaska, which is where most individuals are thought to breed (USFWS 2009). Given the lack of data in large parts of its breeding range and the range of trends (from decreasing to increasing), we have ranked this question as "Unknown".

Distribution Trend in Alaska (-10 to 10) 0

Declines on the Kodiak Archipelago have been documented (Corcoran 2013), but unknown for the rest of its range. Given the lack of data across most of its range, we have ranked this question as "Unknown".

Status Total: 0

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. Population data are unavailable for most of its breeding range in Alaska. At least 15,000 individuals are estimated to breed on the Arctic Coastal Plain (Larned et al. 2012a) and >23,000 on the Yukon-Kuskokwim Delta (Platte and Stehn 2015). An additional ~7,500 and ~4,200 birds are

estimated to breed in Prince William Sound and on the Yukon Flats, respectively (Smith et al. 2012a).

Range Size in Alaska (-10 to 10) -10

Widespread distribution from southeast Alaska to the North Slope, east to the Canadian border and west to the Aleutian Islands (Webster 1950; Kessel 1989; Gibson and Byrd 2007; Hyrenbach et al. 2013; ARCTOS 2016). Colonies documented at coastal sites throughout Alaska (Hyrenbach et al. 2013), but interior distribution is not well understood. Breeding has been documented in Denali National Park, the Brooks Range, and along several rivers and their drainages including the Copper River, the Porcupine River, the Yukon River, and the Tanana River (Gabrielson and Lincoln 1959; Spindler and Kessel 1977; Smith et al. 2012a). Overwinters in Antarctica (McKnight et al. 2013). Estimated range size during breeding is >400,000 sq. km.

Population Concentration in Alaska (-10 to 10) -10

Known to be a colonial nesting species, with variable colony sizes (Hyrenbach et al. 2013). Between 137 and 175 colonies are listed in the USFWS Beringian Seabird Colony (Hyrenbach et al. 2013) and the North Pacific Seabird Data Portal (WSU 2013). These datasets, however, are restricted to coastal areas of Alaska. Relatively large concentrations of Arctic terns also occur in interior Alaska (e.g. the Yukon Flats; Smith et al. 2012a). Given the large population size and range, we estimate that there are >250 colonies of Arctic terns in Alaska.

Reproductive Potential in Alaska

Age of First Reproduction (-5 to 5) -3

Age at first breeding is likely 3 or 4, but may be as early as 2 years old (Hatch 2002).

Number of Young (-5 to 5) 3

Single brood per year. Clutch size ranges from 1 to 3 eggs, but is typically 2 (Isleib and Kessel 1973; Boekelheide 1980; Kessel 1989; Hatch 2002).

Ecological Specialization in Alaska

Dietary (-5 to 5) 1

Little information available for Alaska. Consumes forage fish (e.g. capelin, sand lance, herrin) as well as aquatic invertebrates (e.g. crustaceans, polycheate worms) and possibly flying insects (Kessel 1989; Hatch 2002). Despite this seemingly generalist diet, declines in specific fish species and age classes is thought to be responsible for observed population declines in the Gulf of Alaska (Agler et al. 1999; Cushing et al. 2018) and breeding failures elsewhere in this species' range (Monaghan et al. 1989; Suddaby and Ratcliffe 1997; Gaston et al. 2009). The availability of high-quality prey items can range from abundant to scarce in response to cyclical fluctuations in ocean climate conditions (Agler et al. 1999).

Habitat (-5 to 5) -5

Nests close to water in open habitats with low or no vegetation, including beaches, tidal flats, glacial moraines, coastal bluffs, marshes, and meadows (Isleib and Kessel 1973; Kessel 1989; Petersen et al. 1991; Gibson and Byrd 2007; Armstrong 2008; Johnson et al. 2008b). Little is known about breeding habitat in interior Alaska, but likely nests near freshwater on the open tundra. Forages over lakes, rivers, and marine waters (Kessel 1989; Petersen et al. 1991; Johnson et al. 2008b; Savage et al. 2018).

Biological Total: -34

Action - 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). **Score**

Management Plans and Regulations in Alaska (-10 to 10) -10

Protected under the Migratory Bird Treaty Act (MBTA 1918). Open to subsistence harvesting except during the summer months (AMBCC 2020).

Knowledge of Distribution and Habitat in Alaska (-10 to 10) 2

Distribution of coastal and island colonies is documented and available through the USFWS Beringian Seabird Colony Catalog (Hyrenbach et al. 2013). Breeding range has also been captured during multi-species surveys at various locations throughout the state (e.g. Webster 1950; Isleib and Kessel 1973; Petersen et al. 1991; Van Hemert et al. 2006; Ruthrauff et al. 2007; Johnson et al. 2008b; Savage et al. 2018), with knowledge of habitat associations (Isleib and Kessel 1973; Boekelheide 1980; Kessel 1989; Byrd et al. 2005). However, very little is known about the location and habitat of colonies in interior Alaska, though most of the population is thought to breed there (USFWS 2009). At-sea distribution has been documented through shipboard surveys compiled in the USGS North Pacific Pelagic Seabird Database (Piatt and Drew 2015) and in specific studies (Cushing et al. 2018).

Knowledge of Population Trends in Alaska (-10 to 10) 2

Population data are available for some areas e.g. the Yukon-Kuskokwim Delta, the Arctic Coastal Plain, and the Kodiak Archipelago (Corcoran 2013; Stehn et al. 2013; Platte and Stehn 2015), but no information is available for colonies nesting in interior Alaska, where most of the population is thought to breed (USFWS 2009).

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

Demographic parameters are not monitored in Alaska, but correlative studies and studies elsewhere in this species' range agree that food availability and nest predation limit populations during the breeding season. In Alaska, population dynamics have been linked to changes in ocean climate and sea ice extent, which control the availability of high-quality forage fish (Boekelheide 1980; Agler et al. 1999; Cushing et al. 2018). Elsewhere in its range, recruitment failures and colony abandonment have been directly linked to shortages of high-quality food (Monaghan et al. 1989; Suddaby and Ratcliffe 1997; Gaston et al. 2009). Food availability may also impact adult body condition (Monaghan et al. 1989; Mallory et al. 2017), but additional data are needed to determine if this is the case, and if it translates into lower adult survival or reduced lifetime fitness, as has been proposed for other piscivorous seabirds (Satterthwaite et al. 2010).

Predation, either in isolation or in combination with low food availability, can lead to colony failure or abandonment (Boekelheide 1980; Gaston et al. 2009; Egevang and Frederiksen 2011; Mallory et al. 2017; Scopel and Diamond 2018). However, when predator densities or predation rates are low, Arctic terns can coexist with predators (e.g. introduced rats on the Aleutian Islands; Byrd et al. 2005). As with predation, inclement weather such as late-season snowstorms or heavy rains is also a factor which, in combination with low food availability, can compromise chick survival (Scopel and Diamond 2018) and affect prey availability (Boekelheide 1980).

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.

Harvest:	Not substantial
Seasonal Occurrence:	Breeding
Taxonomic Significance:	Monotypic species
% Global Range in Alaska:	>10%
% Global Population in Alaska:	<25%

Peripheral: No

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