

Beluga

Delphinapterus leucas

Class: Mammalia
Order: Cetacea

Review Status: Peer-reviewed

Version Date: 15 May 2018

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: IX. Blue		
low status and low biological vulnerability and action need		
<u>Category</u>	<u>Range</u>	<u>Score</u>
Status	-20 to 20	-11
Biological	-50 to 50	-24
Action	-40 to 40	-8
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)

-6

Although trends vary across stocks, the overall population of belugas in Alaska appears to be stable or increasing (see Muto et al. 2017). The Beaufort Sea and Bristol Bay stocks are stable or increasing (Lowry et al. 2008; Harwood and Kingsley 2013). Trends are unknown for the eastern Chukchi Sea and eastern Bering Sea stocks (Muto et al. 2017). The Cook Inlet stock is declining (Muto et al. 2017) and is assessed in its own report.

Distribution Trend in Alaska (-10 to 10)

-5

Unknown for most stocks. When data are available, trends vary across stocks. Belugas from the Chukchi Sea seem to have extended their range into the western Beaufort Sea as a result of changing sea ice conditions (Stafford et al. 2018). Meanwhile, the distribution of the Cook Inlet stock is declining (Rugh et al. 2010; Shelden et al. 2017). This report is a species-level report that assesses the status of all beluga populations in Alaska. Given that the Cook Inlet stock represents only a small proportion of the total Alaskan population, we rank this question as D- Suspected stable.

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

Total population size is estimated at over 58,000 (Muto et al. 2017). Individual population estimates

for each stock are listed in Muto et al. (2017).

Range Size in Alaska (-10 to 10) -8

In the summer, belugas are distributed throughout the Beaufort Sea, Chukchi Sea, Bering Sea, Cook Inlet, and the Gulf of Alaska (Muto et al. 2017). Winter range is restricted to the Bering Sea and Cook Inlet (O'Corry-Crowe et al. 2018). Estimated winter range size is ~338,000 sq. km., calculated in GIS.

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

Belugas can congregate in large numbers along the coast and at river mouths to catch migrating fish (Ashford et al. 2013; O'Corry-Crowe et al. 2018). Given range and population size, number of sites >250.

Reproductive Potential in Alaska

Age of First Reproduction (-5 to 5) 3

Estimates range from 6 to 14 years old (Burns and Seaman 1986; Suydam 2009). Average female age at first reproduction was 8 years in the eastern Chukchi Sea (Suydam 2009). We rank this question as $0.5 * B + 0.5 * A$.

Number of Young (-5 to 5) 5

Adult females produce a single calf every two to three years (Burns and Seaman 1986; Suydam 2009).

Ecological Specialization in Alaska

Dietary (-5 to 5) -5

Opportunistic feeders with a diverse diet of various fish species and invertebrates (Seaman et al. 1982; Quakenbush et al. 2015). Diet changes with the season and availability, but common species include salmon, herring, cod, and shrimp (Huntington et al. 1999; Loseto et al. 2009; Quakenbush et al. 2015).

Habitat (-5 to 5) 1

Habitat changes according to season and region. During the winter, migratory stocks (eastern Chukchi and eastern Beaufort Seas) occur in offshore waters and are dependent on openings in the ice to breathe (Seaman et al. 1985; Frost and Lowry 1990). In the spring, they migrate to coastal estuaries, bays, and rivers (Suydam 2009; Stafford et al. 2018). Non-migratory stocks (Cook Inlet and Bristol Bay stocks) remain in relatively shallow estuaries throughout the year (Frost and Lowry 1990; Goetz et al. 2007; Lowry et al. 2008).

Biological Total: -24

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 Marine Mammal Protection Act, which prohibits sport and commercial hunting. Subsistence harvest is permitted except for the Cook Inlet stock (Muto et al. 2017). The Cook Inlet stock also receives additional protection under the Endangered Species Act.

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

Seasonal movements, distribution patterns, and habitat use are well-documented through aerial surveys, satellite telemetry, acoustic surveys, and genetic sampling (e.g. Seaman et al. 1985; Laidre et al. 2000; Richard et al. 2001; Suydam 2009; Hauser et al. 2014; Citta et al. 2016; O'Corry-Crowe

et al. 2016; Stafford et al. 2018; O'Corry-Crowe et al. 2018).

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

2

Knowledge of population trends vary widely based on the stock. The Cook Inlet population is well surveyed annually, with a near complete census (Muto et al. 2017). Reliable trend data are also available for the Bristol Bay stock (Muto et al. 2017). Population trends are not available for the Beaufort Sea, Chukchi Sea, and Bering Sea stocks (Muto et al. 2017).

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

10

Several potential threats have been identified, but it is not known which are most important in limiting population dynamics. These threats include climate change, contaminants, predation, and human disturbance (Huntington 2009). Changes to sea ice habitat as a result of climate change may negatively affect populations (Laidre et al. 2008; Kovacs et al. 2011), and changes in distribution and behavior during abnormal sea ice years have already been observed (O'Corry-Crowe et al. 2016). Environmental contaminants have been found in all five beluga populations, but the effects of these pollutants are unknown (Reiner et al. 2011; Hogue et al. 2013; Ostertag et al. 2013). Declining growth rates have been documented for the Beaufort Sea stock, and may be linked to ecosystem-wide changes affecting the abundance, quality, and distribution of their prey base (Harwood et al. 2014).

Action Total: -8

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:	Year-round
Taxonomic Significance:	Monotypic genus
% Global Range in Alaska:	>10%
% Global Population in Alaska:	25-74%
Peripheral:	No

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