Beluga, Cook Inlet stock

*Delphinapterus leucas pop. 4*

Note: This assessment refers to this subspecies only. A species level report, which refers to all associated subspecies, is also available.

**Review Status:** Peer-reviewed  
**Version Date:** 15 May 2018

### Conservation Status

**NatureServe:** G Rank: G5T1  
**Agency:** ADF&G: Species of Greatest Conservation Need  
**IUCN:** Near Threatened  
**Audubon AK:**

**Final Rank**

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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).

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

The Cook Inlet beluga population has been declining since at least 1994, and does not show signs of recovery (Hobbs et al. 2015; Shelden et al. 2015a; Muto et al. 2017).

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

The distribution of the Cook Inlet beluga population has contracted since the 1970s (Huntington 2000; Rugh et al. 2000; Rugh et al. 2010; NMFS 2008a; Muto et al. 2017), and this trend is continuing (Shelden et al. 2017).

### 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).

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

Recent surveys estimate a population size between 310 and 350 individuals (Muto et al. 2017; Shelden et al. 2017).

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

Found throughout Cook Inlet year-round (Hobbs et al. 2005; Goetz et al. 2012), but range is most
restrained in the summer (O’Corry-Crowe et al. 2018), and is ~3,800 sq. km. The small, isolated Yakutat Bay population is considered part of the Cook Inlet stock (Muto et al. 2017), and has a range size of ~1,000 sq. km. The combined range is 4,800 sq. km.

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

Population is restricted to Cook Inlet and Yakutat Bay (Hobbs et al. 2005; Goetz et al. 2012). Distribution shifts seasonally in response to availability of anadromous fish (Ashford et al. 2013). In the summer, concentrations occur near river mouths and estuaries around Beluga River, the Susitna Delta, Turnagain Arm, Knik Arm, and Chilkatoo Bay (Goetz et al. 2007; Ashford et al. 2013; Lammers et al. 2013). In the fall, winter, and spring they disperse further west and south, near Kalgan Island (Ashford et al. 2013; Lammers et al. 2013).

**Reproductive Potential in Alaska**

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

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).

**Number of Young (-5 to 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)**

Opportunistic feeders with a diverse diet of fish and invertebrates. Consume eulachon and salmon during the summer; in the fall, they switch to other fish species such as cod, sculpin, and flatfishes as spawning fish decline (Goetz et al. 2012; Ashford et al. 2013; Quakenbush et al. 2015). Also consume invertebrates, especially shrimp (Quakenbush et al. 2015).

**Habitat (-5 to 5)**

Unlike other beluga populations, the Cook Inlet DPS is restricted to relatively shallow waters. Beluga habitat selection within Cook Inlet varies by season (NMFS 2016). During fish spawning seasons (spring and summer), beluga concentrate at the mouth of freshwater rivers where prey concentrations are high (NMFS 2008a). During fall and winter, belugas disperse and tend to shift to deeper, more southerly waters (Hobbs et al. 2005; Lammers et al. 2013; NMFS 2016).

**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 to lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs).

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

Protected under the Marine Mammal Protection Act (MMPA) and the Endangered Species Act. The MMPA prohibits sport and commercial hunting. A conservation plan was finalized in 2008 and a recovery plan is in place (NMFS 2008a; NMFS 2016). Beluga are actively managed by NOAA’s National Marine Fisheries Service (NMFS; https://alaskafisheries.noaa.gov/pr); the Cook Inlet stock is co-managed by the Cook Inlet Marine Mammal Council. Because of low population size, subsistence hunting is currently not permitted (Muto et al. 2017).

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

Seasonal movements, habitat use, and distribution patterns have been well-documented through aerial surveys, satellite telemetry, and acoustic surveys (e.g. Rugh et al. 2000; Laidre et al. 2000; Goetz et al. 2007; Rugh et al. 2010; Goetz et al. 2012; Ashford et al. 2013; Shelden et al. 2013;
Hobbs et al. 2015; Shelden et al. 2016; O’Corry-Crowe et al. 2018).

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

Extensive sampling, small population size, and restricted range have allowed for strong estimates of population size and trends (Hobbs et al. 2015; Muto et al. 2017). Population estimates have been calculated since 1993 (NMFS 2016).

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

A number of potentially limiting factors have been identified, but it is unknown which factors are the most important (Carter and Nielsen 2011; NMFS 2016). Initial population declines may have been due to overharvesting, though other factors may have played a role, and it is not known why the population has not rebounded (Mahoney and Shelden 2000; NMFS 2008a; Muto et al. 2017). Proposed limiting factors include habitat degradation (Mahoney and Shelden 2000; NMFS 2016), changes in prey type or abundance (NMFS 2016; Nelson 2017), disease, contaminants (Reiner et al. 2011; Hogeut et al. 2013), and noise pollution (Small et al. 2017). It is possible that several of these factors are interacting with each other to prevent recovery (NMFS 2016). Mortalities due to fisheries, stranding events, and predation by killer whales are generally low and these factors are not considered significant (NMFS 2016; Muto et al. 2017).

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

| Harvest: | None or Prohibited |
| Seasonal Occurrence: | Year-round |
| Taxonomic Significance: | Population |
| % Global Range in Alaska: | >10% |
| % Global Population in Alaska: | Endemic |
| Peripheral: | No |

**References**


