Harbor porpoise, Southeast Alaska stock

Class: Mammalia
Order: Cetacea

Phocoena phocoena pop. 1

Note: Three stocks of harbor porpoises are recognized in Alaska for management purposes: Southeast Alaska, Gulf of Alaska, and Bering Sea.

Review Status: Peer-reviewed **Version Date:** 05 April 2018

Conservation Status

NatureServe:	*Agency:*		
G Rank: G4G5	ADF&G: Species of Greatest Conservation Need	IUCN: Least Concern	Audubon AK:
S Rank: S4	USFWS: Strategic Stock	BLM:	

Final Rank

Conservation category: **IV. Orange**

unknown status and high biological vulnerability and action need

Category	Range	Score
Status	-20 to 20	0
Biological	-50 to 50	6
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

Uncertain. Trends are sensitive to which years are included in the analysis and there appears to be regional differences within the Southeast stock (Dahlheim et al. 2015; Muto et al. 2019). The population in the northern region seems to have remained stable, while the population in the southern region experienced declines from 1991 to 2007 followed by increases (Dahlheim et al. 2015). It is possible that these different trends are the result of population structuring that exists at a finer scale than what is captured by the current stock classification (Dahlheim et al. 2015). Until additional information is available, we rank this question as 0- Unknown.

Distribution Trend in Alaska (-10 to 10) 0

Unknown. The range of this question covers 50 years. Surveys conducted since 1990 have not reported changes in distribution (Dahlheim et al. 2015); however, information is lacking on their distribution prior to the 1990s.

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) 6

Unknown, but suspected small. The most recent estimate of population size that accounts for detection probability and covers the entire range of the Southeast stock dates back to 1997. At that time, corrected population size was estimated at 11,146 porpoise, 95% CI [6,980-17,788] (Hobbs and Waite 2010). More recent estimates have been used to calculate a minimum population size of 897 porpoise; however, this number is biased low because it does not account for imperfect detection (Muto et al. 2019).

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

Occurs in Southeast Alaska from the Dixon Entrance to Cape Suckling (Muto et al. 2019). Primarily found in coastal waters less than 100 meters deep (Hobbs and Waite 2010). Estimated range size is 106,087 sq. km (Dahlheim et al. 2015).

Population Concentration in Alaska (-10 to 10) 2

Concentrates in two major areas: Glacier Bay/Icy Strait and Wrangell/Zarembo Island (Dahlheim et al. 2009). Consistently high densities were recorded in these areas from spring to fall, and throughout the 22 surveyed years (Dahlheim et al. 2009; Dahlheim et al. 2015).

Reproductive Potential in Alaska

Age of First Reproduction (-5 to 5) 1

Unknown for Alaska. Age at sexual maturity averaged 3-4 years for females in eastern Canada (Fisher and Harrison 1970; reviewed in COSEWIC 2006), and 5 years in northwestern Europe (Kesselring et al. 2017).

Number of Young (-5 to 5) 3

Females give birth to one calf per year (Read 1990).

Ecological Specialization in Alaska

Dietary (-5 to 5) 1

Feeds on small, schooling fish e.g. cod, sand lance, smelt, and herring (Castellote et al. 2015). May also feed on invertebrates such as cephalopods and crustaceans (Castellote et al. 2015; COSEWIC 2006). Within this niche, regional and individual differences in prey items suggest that harbor porpoises have a flexible diet (COSEWIC 2006; Andreasen et al. 2017). Because the availability of these prey items are sensitive to changes in oceanographic conditions, with repercussions for the harbor porpoise's ecology (COSEWIC 2006), we rank this question as B- Moderately adaptable.

Habitat (-5 to 5) 1

Little information about habitat requirements in Alaska. Distribution is likely influenced by water depth, prey availability, and water temperatures (Gaskin 1992; Hobbs and Waite 2010). Harbor porpoises are most often seen in coastal waters; in Alaska, they are usually found in waters less than 100 meters deep (Hobbs and Waite 2010). Because harbor porpoises must feed often, they are usually found near prey patches and can undergo long-distance movements to and from these patches (COSEWIC 2006). Prey availability may also explain why harbor porpoises are more abundant in upwellings or coastal fronts (Gaskin 1992).

Biological Total: 6

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) 2

Protected under the U.S. Marine Mammal Protection Act of 1972 (16 U.S.C. §§ 1361 et seq.). Subsistence harvest is allowed, but is likely non-existent or very low (Muto et al. 2019). Incidental

take from commercial fisheries does occur and is potentially substanial (Muto et al. 2019).

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

Distribution is known from aerial and ship-based surveys (e.g. Dahlheim et al. 2009; Hobbs and Waite 2010; Dahlheim et al. 2015). To our knowledge, fine-scale habitat associations have not been studied in Alaska. Harbor porpoises can be difficult to detect and identify (Hobbs and Waite 2010).

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

The last comprehensive population estimate dates back to 1997 (Hobbs and Waite 2010; Muto et al. 2019). More localized surveys have been conducted since then and have allowed researchers to assess population trends (Dahlheim et al. 2015; Muto et al. 2019). Trends appear to exhibit regional differences and are sensitive to which years are included in the analysis (Muto et al. 2019). The latest stock assessment used survey data from 2010-2012 to calculate minimum population size (Muto et al. 2019).

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

Factors that limit this population remain speculative. Potential factors include incidental take from commercial fisheries, habitat degradation, changes in prey availability, and toxicity from harmful algal blooms (COSEWIC 2006; Lefebvre et al. 2016; Muto et al. 2019). It is unclear why the population in the southern part of its Southeast Alaskan range declined in the 1990s (Muto et al. 2019).

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:	Substantial, regulations
Seasonal Occurrence:	Year-round
Taxonomic Significance:	Population
% Global Range in Alaska:	<10%
% Global Population in Alaska:	<25%
Peripheral:	No

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