



The Alaska Natural Heritage Program

Conservation Status Report

Eubalaena japonica

IDENTIFIERS

Scientific Name *Eubalaena japonica*

English Name North Pacific Right Whale

English Name Synonyms

ELCODE AMAGJ02020

Scientific Name Concept Reference Wilson, D. E., and D. M. Reeder (editors). 2005. Mammal species of the world: a taxonomic and geographic reference. Third edition. The Johns Hopkins University Press, Baltimore. Two volumes. 2,142 pp.

Taxonomy Comments Bowhead whales and right whales often have been included in the same genus (*Balaena*) (e.g., Rice 1998), but most recent classifications recognize them as distinct genera (*Balaena* for bowhead whale, *Eubalaena* for right whales) (e.g., Baker et al. 2003; Mead and Brownell, in Wilson and Reeder 2005). MtDNA data are consistent with recognition of *Balaena* and *Eubalaena* as distinct genera (Rosenbaum et al. 2000).

A strong consensus does not exist regarding the taxonomic status of the various populations of right whales. Based on mtDNA data, Rosenbaum et al. (2000) proposed that the North Atlantic, North Pacific, and Southern Hemisphere populations could be recognized as distinct species (*E. glacialis*, *E. japonica*, and *E. australis*, respectively). Baker et al. (2003) argued against this proposal, noting among other things that no other consistent differences have been found among the three populations. The recovery plan for this species and Mead and Brownell (in Wilson and Reeder 1993) regarded the southern right whale (*E. australis*) as a distinct species, but Rice (1998) and Baker et al. (2003) included *australis* in *Eubalaena* (or *Balaena*) *glacialis*. Mead and Brownell (in Wilson and Reeder 2005) cited Rosenbaum et al. (2000) in recognizing *E. glacialis*, *E. australis*, and *E. japonica* as distinct species.

Recent analysis of mtDNA and nuDNA strongly supports the hypothesis of three genetically distinct species, despite the lack of any diagnostic morphological



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characters, thereby providing genomic justification for the recognition of *E. japonica* as a distinct species in the North Pacific (Gaines et al. 2005). A genetic study of cyamid populations (whale lice) found only on right whales suggests these amphipod crustaceans have been fully (or almost fully) isolated for several million years (Kaliszewska et al. 2005). This finding also strongly supports the view that North Atlantic, North Pacific, and southern populations of right whales should be considered distinct species.

<u>Kingdom</u>	<u>Phylum</u>	<u>Class</u>	<u>Order</u>	<u>Family</u>
Animalia	Craniata	Mammalia	Cetacea	Balaenidae

CONSERVATION STATUS/LEGAL DESIGNATION

Global Status (G RANK)	G1
State Status (S RANK)	S1
USFWS/NMFS	Listed endangered
BLM	
State of Alaska (ADF&G)	Endangered
USFS	

STATE STATUS SUMMARY

Rank Reasons Eastern North Pacific stock ranges in the Bering Sea and Gulf of Alaska. Extremely low numbers; only 17-25 known individuals. Populations have failed to increase significantly even with protection. Potential threats include inbreeding depression and low population density effects, collisions with ships, entanglement in fishing gear, disturbance by human activity, and changes in food supply as a result of climatic warming.

Rank Review Date 05/16/2006

Date Status Assigned 05/16/2006



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DISTRIBUTION

Land Ownership

BCR

Ecoregion

POPULATION & OCCURRENCES

Number of Occurrences 1 - 5

Comments 1 EO

Population Size 50 - 250 individuals

Comments Until recently, the eastern North Pacific stock was estimated in the tens of animals (Brownell et al. 2001, Tynan et al. 2001, North Pacific Right Whale Recovery Team 2004). Sixteen to 17 unique whales are known from genetic work and boat/aerial surveys in the SEBS (Shelden, NOAA, personal communication); observations of adults and calves in the SEBS in 2004 expanded the known eastern population to at least 25 individuals (NOAA 2004). Of 13 individuals photographed during aerial surveys in 1998-2000, one has already been rephotographed, and 5 of 11 genetic samples collected in 1997 and 1999 were repeat samples; this mark-recapture success rate is consistent with a very small population size (LeDuc et al. 2001). Brownell et al. (2001) suggested from a review of sighting records that the abundance of this species in the western North Pacific was likely in the low hundreds.

RANGE

Range Extent 200,000-2,500,000 square km (about 80,000-1,000,000 square miles)

Comments Southeastern Bering Sea slope and rarely in the Gulf of Alaska. All detections since 1998 (except for a passive acoustic detection) were in shelf waters adjacent to Kodiak Island. In recent decades, only detections in the Gulf of Alaska came from passive acoustic recorders (Wade et al. 2011b).



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TREND

Short-term Trend Declining (decline of 10-30%)

Comments A reliable trend estimate for the eastern North Pacific stock is currently not available (Angliss and Outlaw 2005). Until recently, no juveniles had been detected in the eastern North Pacific population for many decades; however, in October 2004, three cow and calf pairs and other individuals were observed in the Bering Sea (NOAA 2004). Even with almost complete protection for decades, the eastern North Pacific population remains extremely small with no sign of an increasing population trend (North Pacific Right Whale Recovery Team 2004). The relative paucity of sightings virtually everywhere in the 20th century and the pattern of apparent decline observed after the 1960s all point to a situation in which remnant populations may have been slowly recovering from intensive whaling, only to be devastated by illegal soviet catches.

Long-term Trend Substantial decline (decline of 50-75%)

Comments Before exploitation, right whales were found in the Gulf of Alaska, eastern Aleutians and south-central Bering Sea (also in the Sea of Okhotsk and Sea of Japan). During 1965-1999, there were only 82 sightings of right whales in the entire eastern North Pacific, with the majority of these in the Bering Sea and adjacent areas of the Aleutian Islands. Most right whales observed in AK currently were concentrated in the SE Bering Sea. Overall, the geographic distribution of the species in the North Pacific was considerably greater in the 19th century than it appears to be in modern times.

THREATS

Scope High

Severity High

Immediacy Low

Comments Initial large decline due primarily to hunting that occurred through the mid-1930s and lack of population recovery has been attributed to illegal Soviet whaling in the 1960s. Current threats are largely unknown, but potentially include inbreeding depression and low population density effects (Allee effect),



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marine traffic and ship strikes, entanglement in fishing gear, degradation of feeding habitat (e.g., through effects of pollution on zooplankton), human disturbance (e.g., ships and other underwater noisemakers) and climate change and resultant changes in food supply (see North Pacific Right Whale Recovery Team 2004).

OTHER FACTORS

Intrinsic Vulnerability	Highly vulnerable
Comments	Highly vulnerable, species slow to mature and reproduces infrequently.
Environmental Specificity	Moderate. Generalist or community with some key requirements scarce.
Comments	Highly adaptable; habitat generalist. Highly adaptable; opportunistic feeder

INFORMATION GAPS

- Research** Determine reasons for lack of population recovery. Research needed on population structure to clarify distinction between eastern and western stocks and, if possible, determine if populations are suffering from inbreeding depression. Investigate life history parameters including age of sexual maturity and reproductive rate, foraging behavior, and habitat use and preferences. Initial large decline due primarily to hunting that occurred through the mid-1930s and lack of population recovery has been attributed to illegal Soviet whaling in the 1960s. Current threats are largely unknown, but potentially include inbreeding depression and low population density effects (Allee effect), marine traffic and ship strikes, entanglement in fishing gear, degradation of feeding habitat (e.g., through effects of pollution on zooplankton), human disturbance (e.g., ships and other underwater noisemakers) and climate change and resultant changes in food supply (see North Pacific Right Whale Recovery Team 2004).
- Inventory** Gather baseline data on occurrence, movements, abundance, and habitat use to support recovery efforts (North Pacific Right Whale Recovery Team 2004, ADFG 2005). Use a combination of survey methods to locate whales and identify important habitat in Alaskan waters (e.g., ship-based and aerial whale surveys, passive acoustic monitoring using moored buoys, and oceanographic modeling to investigate relationship with primary prey species; Sheldon et al. 2005). Acoustic surveys and



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automatic call detection techniques may be especially useful and cost-effective ways of identifying areas of occurrence that warrant future visual and acoustic survey effort (Mellinger et al. 2004, Clark et al. 2005). Aerial and vessel surveys for right whales were conducted between 1998 and 2000 in a portion of the southeastern Bering Sea where right whales have been observed each summer since 1996 (Goddard and Rugh 1998). North Pacific right whales are observed consistently in this area, although it is clear from historical and Japanese sighting survey data that right whales often range outside this area and occur elsewhere in the Bering Sea (Clapham et al. 2004, LeDuc et al. 2001, Moore et al. 2000c, Moore et al. 2002, NMFS unpublished data in Angliss and Outlaw 2006). Bottom-mounted acoustic recorders were deployed in the southeastern Bering Sea and the northern Gulf of Alaska in 1999 to document the seasonal distribution of right whale calls (Mellinger et al. 2004). Preliminary analysis of the data from the recorders indicates that right whales remain in the southeastern Bering Sea from May through November with peak call detection in September (Munger and Hildebrand 2004). Acoustic monitoring at seven sites in the Gulf of Alaska has detected right whale calls at only two: one off eastern Kodiak and the other in deep water south of the Alaska Peninsula. Right whales have not been observed outside the localized area in the southeastern Bering Sea during surveys conducted for fishery management purposes which covered a broader area of Bristol Bay and the Bering Sea. There are fewer recent sightings of right whales in the Gulf of Alaska than in the Bering Sea (Brownell et al. 2001), although little survey effort has been conducted in this region. Waite et al. (2003) summarized sightings from the Platforms of Opportunity Program from 1959-97. Seven sightings of right whales were reported, but only one sighting of four right whales at the mouth of Yakutat Bay in 1979 could be positively confirmed (Waite et al. 2003). Sightings of a single right whale off eastern Kodiak Island occurred in July 1998 during an aerial survey (Waite et al. 2003), and additional singletons were observed in the Barnabas Canyon area from NOAA surveys in August 2004, 2005, and 2006 (NMML unpublished data in Angliss and Outlaw 2006). Surveys were conducted in Bristol Bay in 2002 where the first sighting of a calf was documented in decades (Waite et al. 2003).

STEWARDSHIP

Management Listed as endangered under the ESA and depleted under the MMPA; this species is not harvested. IN 2006, NMFS issued a final ruling designating 2 areas as northern right whale critical habitat, one in the Gulf of Alaska and the other in the Bering Sea. Global conservation and management needs: In 1996, NMFS proposed rules that would prohibit vessels from approaching a right whale closer than 460 m (Federal Register, 7 August 1996). To avoid jeopardy to North



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Atlantic right whales, NMFS (Federal Register, 3 November 1997) proposed closing the Mid-Atlantic and Northeast Coastal segments of the Atlantic pelagic drift gillnet fishery for swordfish, tuna, and shark through 31 July 1998; protection of this type may be necessary in the North Pacific if critical foraging, calving and wintering habitats are identified and designated. NOAA's Ship Strike Reduction Strategy for the eastern Atlantic is currently under review (CSI 2005) and a similar strategy for the North Pacific could reduce the likelihood of potential mortality from ship strikes. Maintain ban on hunting and directed takes; protect habitat; promote and enforce regulations that reduce collisions with vessels. See recovery plans (1990, North Pacific Right Whale Recovery Team 2004). State conservation and management needs: Protect habitat important for feeding and reproduction (such as areas proposed for critical habitat designation in the southeastern Bering Sea and Gulf of Alaska). Coordinate research efforts with Canada and Russia. Maintain ban on hunting and directed takes (ADFG 2005). Minimize the impacts of present or potential threats, including establishment of response programs for disentangling whales from fishing gear. Promote and enforce regulations that reduce collisions with vessels. Raise public awareness and understanding of the status of and threats to North Pacific right whales.

ECOLOGY AND LIFE HISTORY

General Description

Subspecies

Comments

Identification

Comments

Ecology Comments

Analysis of all known sightings data for this species reveal two known ""areas of concentration"". The area of densest concentration (91% of all encounters in this area) in the southeastern Bering Sea spreads from roughly east from 173W longitude to 161 W longitude and south from 58N latitude. The other area of concentration is in the Gulf of Alaska and spreads east from 170 W longitude to 150 W longitude and south to 52 N longitude. Analysis of all known sightings data for this species reveal two known ""areas of concentration"". The area of densest concentration (91% of all encounters in this area) in the southeastern Bering Sea spreads from roughly east from 173W longitude to 161 W longitude and south from 58N latitude. The other area of concentration is in the Gulf of Alaska and spreads east



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from 170 W longitude to 150 W longitude and south to 52 N longitude.

Migration/Mobility Comments

Habitat Comments Sheldon et al. (2005) summarized historic and current habitat use in the Bering Sea and Gulf of Alaska (GOA) based on observation and catch data over the past two centuries. Until the late 1960s, waters of the southeastern Bering Sea (SEBS) slope and middle shelf, eastern Aleutian Islands, and GOA slope and abyssal plain were important habitat. Since 1980, whales have only been consistently reported on the SEBS middle shelf, although acoustic detections have been reported in the other historical use areas. Until the late 1960s, whales were commonly seen in waters >2000 m deep, indicating their distribution was not restricted to the continental shelf. Since 1979, sightings have been in much shallower water (

Food Habits Zooplankton specialists; primary prey is euphasiids and copepods, gathered by skimming through schools with mouth agape.

Phenology Diurnal, Nocturnal

**Reproduction
Comments** Sexually mature in 5-9 years (Hamilton et al. 1998). Mean age of first parturition is 7.6 years (Knowlton et al. 1994, Kraus et al. 2001). One calf is produced generally every 3-5 years.

Economic Comments Harvest prohibited.

Version Author AKNHP

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