NORTH PACIFIC RIGHT WHALE (*Eubalaena japonica*):
Eastern North Pacific Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Whaling records indicate that right whales in the North Pacific ranged across the entire North Pacific north of 35°N and occasionally as far south as 20°N (Rosenbaum et al., 2000; Fig. 37). Before right whales in the North Pacific were heavily exploited by commercial whalers, concentrations were found in the Gulf of Alaska, eastern Aleutian Islands, southcentral Bering Sea, Sea of Okhotsk, and Sea of Japan (Braham and Rice 1984). During 1958-82, there were only 32-36 sightings of right whales in the central North Pacific and Bering Sea (Braham 1986). In the eastern North Pacific, south of 50°N, only 29 reliable sightings were recorded between 1900 and 1994 (Scarff 1986, Scarff 1991, Carretta et al. 1994), and one in 1996 off the tip of Baja, California (Gendron 1999). Sightings have been reported as far south as central Baja California in the eastern North Pacific, as far south as Hawaii in the central North Pacific, and as far north as the sub-Arctic waters of the Bering Sea and Sea of Okhotsk in the summer (Herman et al. 1980, Berzin and Doroshenko 1982, NMFS 1991).

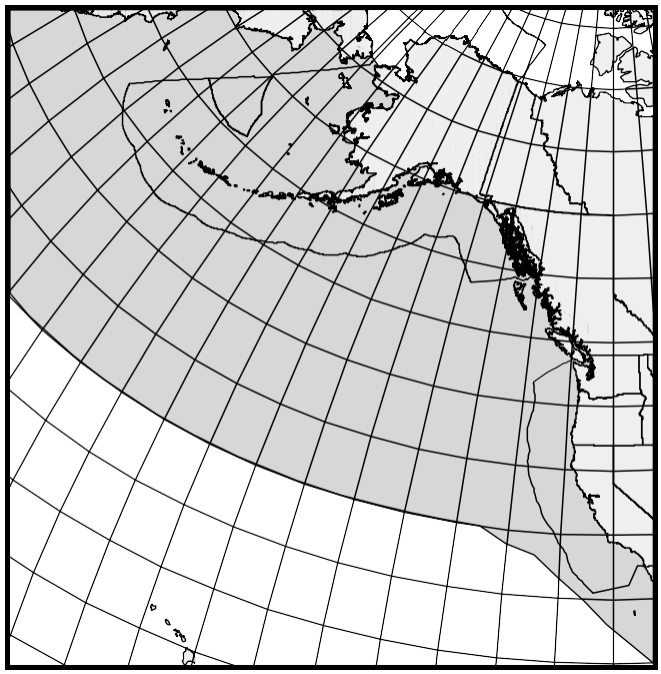

Figure 37. Approximate historical distribution of right whales in the eastern North Pacific (shaded area).

Right whales calve in coastal waters during the winter months. However, in the eastern North Pacific no such calving grounds were ever found (Scarff 1986). Migratory patterns of the North Pacific stock are unknown, although it is thought the whales spend the summer on high-latitude feeding grounds and migrate to more temperate waters during the winter (Braham and Rice 1984).

The following information was considered in classifying stock structure according to the Dizon et al. (1992) phylogeographic approach: 1) Distributional data: distinct geographic distribution; 2) Population response data: unknown; 3) Phenotypic data: unknown; and 4) Genotypic data: unknown. Based on this limited information, two stocks of North Pacific right whales are currently recognized: a Sea of Okhotsk stock and an eastern North Pacific Stock (Rosenbaum et al., 2000).

POPULATION SIZE

The pre-exploitation size of this stock exceeded 11,000 animals (NMFS 1991). Based on sighting data, Wada (1973) estimated a total population of 100-200 in the North Pacific. Rice (1974) stated that only a few individuals remained in the eastern North Pacific stock, and that for all practical purposes the stock was extinct because no sightings of a cow with calf have been confirmed since 1900 (D. Rice, pers. comm., National Marine Fisheries Service). A reliable estimate of abundance for the North Pacific right whale stock is currently not available.

There have been several recent sightings of right whales in the North Pacific. On April 2, 1996 a right whale was sighted off of Maui (D. Salden, pers. comm., Hawaii Whale Research Foundation). This was the first documented sighting of a right whale in Hawaiian waters since 1979 (Herman et al. 1980, Rowntree et al. 1980). More importantly, a group of 3-4 right whales was sighted in western Bristol Bay, southeastern Bering Sea (July 30, 1996) which may have included a juvenile animal (Goddard and Rugh 1998). During July 1997, a group of 4-5 individuals was encountered one evening in Bristol Bay, followed by a second sighting of 4-5 whales the following morning in approximately the same location (Tynan 1999). During July 1998, July 1999, and July 2000, six, five, and eight right whales, respectively,

were again found in the same general region of the southeastern Bering Sea (Leduc et al. 2000 and W. Perryman. pers. comm., National Marine Fisheries Service). Genetic analyses on samples from all 5 whales seen in 1999 determined that the animals were all male (LeDuc et al. 2000). Aerial photogrammetric analyses indicated that one of the animals seen in 1999 was also seen in 1998 (LeDuc et al. 2000). Two right whales were recorded during a vessel-based survey in the central Bering Sea in July of 1999 (Moore et al. 2000). Of the eight whales seen during the July 2000 aerial survey, 6 were new animals which had not been seen previously, one was a re-sight, and one could not be reliably identified (R. LeDuc, pers. comm., National Marine Fisheries Service).

Minimum Population Estimate

At this time, it is not possible to produce a reliable estimate of minimum abundance for this stock, as a current estimate of abundance is not available. However, it is worth noting that, although only 14 individual animals have been photographed during aerial surveys during 1998, 1999, and 2000, there have already been two occurrences of animals which have been photographed in more than one year. This "mark-recapture" success rate is consistent with a very small population size.

Current Population Trend

A reliable estimate of trend in abundance is currently not available.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Due to insufficient information, it is recommended that the default cetacean maximum net productivity rate (R_{MAX}) of 4% be employed for this stock (Wade and Angliss 1997). However, this default rate is likely an underestimate based on the work reported by Best (1993).

POTENTIAL BIOLOGICAL REMOVAL

Under the 1994 reauthorized Marine Mammal Protection Act (MMPA), the potential biological removal (PBR) is defined as the product of the minimum population estimate, one-half the maximum theoretical net productivity rate, and a recovery factor: $PBR = N_{MIN} \times 0.5R_{MAX} \times F_R$. The recovery factor ($F_R$) for this stock is 0.1, the recommended value for cetacean stocks which are listed as endangered (Wade and Angliss 1997). However, because a reliable estimate of minimum abundance is currently not available, the PBR for this stock is unknown.

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

Fisheries Information

Gillnets were implicated in the death of a right whale off the Kamchatka Peninsula (Russia) in October of 1989 (Kornev 1994). No other incidental takes of right whales are known to have occurred in the North Pacific. Any mortality incidental to commercial fisheries would be considered significant.

Based on the lack of reported mortalities, the estimated annual mortality rate incidental to commercial fisheries is zero whales per year from this stock. Therefore, the annual human-caused mortality level is considered to be insignificant and approaching a zero mortality and serious injury rate.

Subsistence/Native Harvest Information

Subsistence hunters in Alaska and Russia are not reported to take animals from this stock.

Other Mortality

Right whales are large, slow-swimming, tend to congregate in coastal areas, and have a thick layer of blubber which enables them to float when killed. These attributes made them an easy and profitable species for early (pre-modern) whalers. By the time the modern (harpoon cannons and steam powered catcher boats) whale fishery began in the late 1800s, right whales were rarely encountered (Braham and Rice 1984). Between 1835 and 1909, an estimated 15,374 right whales were taken from the North Pacific by American-registered whaling vessels, with most of those animals taken prior to 1875 (Best 1987, IWC 1986). In addition, 28 right whales were killed between 1914 and 1951 in Alaskan and British Columbian waters (Reeves et al. 1985). The estimated mortality likely underestimates the actual kill as a result of under-reporting of the Soviet catches (Yablokov 1994).

Ship strikes and entanglement in fishing gear are significant sources of mortality for the North Atlantic stock of right whales, and it is possible that right whales in the North Pacific are also vulnerable to these sources of mortality. However, due to their rare occurrence and scattered distribution it is impossible to assess the threat of ship strikes or entanglement to the North Pacific stock of right whales at this time.

STATUS OF STOCK

The right whale is listed as "endangered" under the Endangered Species Act of 1973, and therefore designated as "depleted" under the MMPA. NMFS now considers the North Pacific animals to be distinct at the species level from North Atlantic animals. As a result, the stock is classified as a strategic stock. Reliable estimates of the minimum population size, population trends, and PBR are currently not available. Though reliable numbers are not known, the abundance of this stock is considered to represent only a small fraction of its precommercial whaling abundance (i.e., the stock is well below its Optimum Sustainable Population size). The estimated annual rate of human-caused mortality and serious injury seems minimal for this stock. The reason(s) for the apparent lack of recovery for this stock is(are) unknown.

On 4 October 2000, NMFS received a petition from the Center for Biological Diversity to designate critical habitat for this stock. Petitioners asserted that the southeast Bering Sea shelf from 55-60° N latitude should be considered critical habitat. On 1 June 2001, NMFS found the petition to have merit (66 FR 29773). NMFS is currently considering whether the petitioned action is warranted under the ESA.

CITATIONS

Berzin, A. A., and N. V. Doroshenko. 1982. Distribution and abundance of right whales in the North Pacific. Rep. Int. Whal. Comm. 32:381-383.

Best, P. B. 1993. Increase rates in severely depleted stocks of baleen whales. ICES J. Mar. Sci 50:169-86.

Best, P. B. 1987. Estimates of the landed catch of right whale (and other whalebone) whales in the American fishery. Fishery Bulletin 85(3):403-418.

Braham, H. W. 1986. An annotated bibliography of right whales, *Eubalaena glacialis*, in the North Pacific. Rep. Int. Whal. Comm. (Special Issue 10):65-77.

Braham, H. W., and D. W. Rice. 1984. The right whale, *Balaena glacialis*. Mar. Fish. Rev. 46(4):38-44.

Carretta, J. V., M. S. Lynn, and C. A. LeDuc. 1994. Right whale, *Eubalaena glacialis*, sighting off San Clemente Island, California. Mar. Mammal Sci. 10(1):101-104.

Dizon, A. E., C. Lockyer, W. F. Perrin, D. P. DeMaster, and J. Sisson. 1992. Rethinking the stock concept: a phylogeographic approach. Conserv. Biol. 6:24-36.

Gendron, D., S. Lanham, and M. Carwardine. 1999. North Pacific right whale (*Eubalaena glacialis*) sightings south of Baja California. Aquatic Mammals 25(1): 31-34.

Goddard, P. C., and D. J. Rugh. 1998. A group of right whales seen in the Bering Sea in July 1996. Mar. Mammal Sci. 14(2):344-349.

Herman, L. M., C. S. Baker, P. H. Forestell, and R. C. Antinoja. 1980. Right whale, *Balaena glacialis,* sightings near Hawaii: a clue to the wintering grounds? Mar. Ecol. Prog. Ser. 2:271-275.

International Whaling Commission. 1986. Report of the workshop on the status of right whales. Rep. Int. Whal. Comm. (Special Issue 10):1-33.

Kornev, S. I. 1994. A note on the death of a right whale (*Eubalaena glacialis*) off Cape Lopakta (Kamchatka). Rep. Int. Whal. Comm. (Special Issue 15):443-444.

LeDuc, R., W. L. Perryman, M. MacDonald, J. Hyde, and R. L. Brownell, Jr. 2000. Progress report on the eastern North Pacific right whale research during July 1999. Paper SC/52/OS13 presented to the International Whaling Commission. 7p.

Moore, S. E., J. M. Waite, L. L. Mazzuca, and R. C. Hobbs. 2000. Provisional estimates of mysticete whale abundance on the central Bering Sea shelf. J. Cetacean Res. Manage. 2(3):227-234.

National Marine Fisheries Service. 1991. Recovery Plan for the Northern Right Whale (*Eubalaena glacialis*). Prepared by the Right Whale Recovery Team for the National Marine Fisheries Service, Silver Spring, Maryland. 86 pp.

Reeves, R. R., S. Leatherwood, S.A. Karl, and E.R. Yohe. 1985. Whaling results at Akutan (1912-39) and Port Hobron (1927-37)., Alaska. Rep. Int. Whal. Commn 35:441-457.

Rice, D. W. 1974. Whales and whale research in the eastern North Pacific. Pp. 170-195, *In* W. E. Schevill (ed.), The whale problem: A status report. Harvard Press, Cambridge, MA.

Rosenbaum, H.C., R.L. Brownell, M.W. Brown, C. Schaeff, V. Portway, B.N. White, S. Malik, L.A. Pastene, N.J. Patenaude, C.S. Baker, M.Goto, P.B. Best, P.J. Clapham, P. Hamilton, M. Moore, R. Payne, V. Rowntree, C.T. Tynan, J.L. Bannister, and R. DeSalle. 2000. World-wide genetic differentiation of Eubalaena: questioning the number of right whale species. Molecular Ecology 9 (11): 1793-1802.

Rowntree, V., J. Darling, G. Silber, and M. Ferrari. 1980. Rare sighting of a right whale (*Eubalaena glacialis*) in Hawaii. Can. J. Zool. 58:308-312.

Scarff, J. E. 1986. Historic and present distribution of the right whale, *Eubalaena glacialis*, in the eastern North Pacific south of 50°N and east of 180°W. Rep. Int. Whal. Comm. (Special Issue 10):43-63.

Scarff, J. E. 1991. Historic distribution and abundance of the right whale, *Eubalaena glacialis*, in the North Pacific, Bering Sea, Sea of Okhotsk and Sea of Japan from the Maury Whale Charts. Rep. Int. Whal. Comm. 41:467-487.

Tynan, C. 1999. Redistribution of cetaceans in the southeast Bering Sea relative to anamolous oceanographic conditions during the 1997 El Niño. In Proceedings of the 1998 science board symposium on the impacts of the 1997/98 El Niño event on the North Pacific Ocean and its marginal seas. (Eds: Freeland, H. J., Peterson, W. T., Tyler, A.) (PICES Scientific Report No. 10) North Pacific Marine Science Organization (PICES), Sydney, BC, Canada, 115-117.

Wada, S. 1973. The ninth memorandum on the stock assessment of whales in the North Pacific. Rep. Int. Whal. Comm. 23:164-169.

Wade, P. R., and R. Angliss. 1997. Guidelines for assessing marine mammal stocks: report of the GAMMS workshop April 3-5, 1996, Seattle, Washington. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-OPR-12, 93 pp.

Yablokov, A. V. 1994. Validity of whaling data. Nature 367:108.