

COSEWIC
Assessment and Update Status Report

on the

North Pacific Right Whale
Eubalaena japonica

in Canada



ENDANGERED
2004

COSEWIC
COMMITTEE ON THE STATUS OF
ENDANGERED WILDLIFE
IN CANADA



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DES ESPÈCES EN PÉRIL
AU CANADA

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Gaskin, D.E. 1985. Update COSEWIC status report on the Right Whale *Eubalaena glacialis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 50 pp.

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COSEWIC Assessment Summary

Assessment Summary – November 2004

Common name

North Pacific Right Whale

Scientific name

Eubalaena japonica

Status

Endangered

Reason for designation

Although there have not been sightings of this species in the last 50 years in Canadian waters, there have been sightings both south and north of British Columbia waters. Therefore, it is not appropriate to classify the species as extirpated. The total population in the eastern North Pacific likely numbers a few tens of animals.

Occurrence

Pacific Ocean

Status history

The Right Whale was considered a single species and designated Endangered in 1980. Status re-examined and confirmed in April 1985 and April 1990. Split into two species in May 2003. North Pacific Right Whale was not re-evaluated in May 2003; it retained the Endangered status of the original Right Whale. Status re-examined and confirmed Endangered in November 2004. Last assessment based on an update status report.



COSEWIC
Executive Summary

North Pacific Right Whale
Eubalaena japonica

Species information

The taxonomic status of right whales (genus *Eubalaena*) worldwide has been the subject of mild controversy for over 20 years. In 2000, the International Whaling Commission's Scientific Committee, after considering genetic and morphological data, decided to retain the generic name of *Eubalaena* for right whales, and recognize three species, *E. japonica* for the North Pacific, *E. glacialis* for the North Atlantic, and *E. australis* for all southern hemisphere right whales.

Right whales are large, robust whales, with square chins and a generally black coloration with occasional white belly and chin patches and no dorsal fin. They grow to about 18 m in length, with adult females averaging about 1 m larger than adult males.

Distribution

Historical distribution from offshore whaling data (1785-1913) show that right whales were present in British Columbia waters during the months of April to October, possibly feeding or migrating to or from calving grounds. Modern whalers (1900-1951), who operated mainly in coastal waters, took only seven right whales. The last confirmed right whale sighting in British Columbia waters was in 1970 west of the Queen Charlotte Islands. It is not possible to describe the current distribution of the North Pacific right whale off British Columbia.

Habitat

Current distribution patterns and migration routes of eastern North Pacific right whales are not known. The location of feeding grounds remains a mystery. It is not possible to identify the habitat currently occupied by the species or that required for recovery.

Biology

The basic aspects of the biology and ecology of the eastern North Pacific right whale are poorly known.

Population sizes and trends

The pre-exploitation abundance of North Pacific right whales has been estimated to be more than 11,000 animals and perhaps twice that number. Today the right whale in the eastern North Pacific is extremely rare, reduced to near extinction by 19th century pelagic whaling and illegal whaling by the Soviet Union in the 1960s. At this time, there is no agreement on the size of the population; it is not possible to produce an estimate of abundance or discern population trends for the eastern North Pacific right whale.

Limiting factors and threats

A number of factors might account for the generally slow rate of recovery or possibly prevent recovery of the population. Eastern North Pacific right whales have a critically small population that could result in a low reproductive rate and they are at high risk from stochastic effects, which could limit their recovery.

Special significance of the species

The eastern North Pacific right whale is among the most endangered of all the large whales, and it is also the most poorly studied.

Existing protection or other status designations

All right whales, worldwide, are protected under the International Convention for the Regulation of Whaling, implemented by the International Whaling Commission. However, extensive illegal whaling by the Soviet Union into the 1960s has been documented. The North Pacific right whale is classified as Endangered on the IUCN (World Conservation Union) Red List of Threatened Animals and in the United States under the Endangered Species Act.

In Canada, right whales are protected from hunting and harassment according to the Marine Mammal Regulations under the Federal Fisheries Act as well as the Species At Risk Act (proclaimed June 2003). The Department of Fisheries and Oceans, as the responsible management agency, published the National Recovery Strategy for the North Pacific Right Whale, *Eubalaena japonica*, in Pacific Canadian Waters in 2003.



COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5th 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal agencies (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government members and the co-chairs of the species specialist and the Aboriginal Traditional Knowledge subcommittees. The Committee meets to consider status reports on candidate species.

DEFINITIONS (NOVEMBER 2004)

Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and it is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for atleast 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

** Formerly described as "Not In Any Category", or "No Designation Required."

*** Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994.



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The Canadian Wildlife Service, Environment Canada, provides full administrative and financial support to the COSEWIC Secretariat.

**Update
COSEWIC Status Report**

on the

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Eubalaena japonica

in Canada

2004

TABLE OF CONTENTS

SPECIES INFORMATION.....	3
Name and classification.....	3
Description.....	3
Nationally significant populations.....	5
DISTRIBUTION.....	5
Global range.....	5
Canadian range.....	6
HABITAT.....	9
Habitat requirements.....	9
Trends.....	9
Protection/ownership.....	9
BIOLOGY.....	9
Reproduction.....	9
Survival.....	9
Physiology.....	9
Movements/dispersal.....	10
Nutrition and interspecific interactions.....	10
POPULATION SIZES AND TRENDS.....	10
LIMITING FACTORS AND THREATS.....	11
Whaling.....	11
Population Numbers and Genetic Diversity.....	12
Marine Traffic and Ship Strikes.....	12
Entanglement in Fishing Gear.....	12
Noise.....	12
Climate Change and Food Supply.....	13
Pollution.....	13
SPECIAL SIGNIFICANCE OF THE SPECIES.....	13
EXISTING PROTECTION OR OTHER STATUS.....	13
SUMMARY OF STATUS REPORT.....	14
TECHNICAL SUMMARY.....	15
ACKNOWLEDGEMENTS.....	17
INFORMATION SOURCES.....	17
BIOGRAPHICAL SUMMARY OF REPORT WRITERS.....	21
AUTHORITIES CONTACTED.....	22
COLLECTIONS EXAMINED.....	22

List of figures

Figure 1. Historic distribution of Right Whales along the Pacific Coast of Canada.....	4
Figure 2. Map of historical right whale catches in the eastern North Pacific from logbook records of American whale ships (replicated from Townsend 1935).....	6
Figure 3. Right whale sightings/catches in British Columbia waters and in US water adjacent to the Canadian border, 1900-2002.....	7

List of tables

Table 1. Right whale catches and sightings in British Columbia waters, 1900-2002.....	8
Table 2. Right whale sightings in waters adjacent to Canadian waters, 1900-2002.....	8
Table 3. Offshore right whale sightings, 1900-2002	8

SPECIES INFORMATION

Name and classification

The taxonomic status of right whales (genus *Eubalaena*) worldwide has been the subject of mild controversy for over twenty years. Most authors agreed that there should be two species, *E. glacialis* for the North Atlantic and North Pacific populations (so-called northern right whales), and *E. australis* for all Southern Hemisphere populations (southern right whales), with the North Atlantic and North Pacific forms sometimes considered subspecies, *E. glacialis glacialis* and *E. g. japonica*, respectively (see Schevill 1986). Rice (1998) lumped right whales and bowheads (*Balaena mysticetus*) within the genus *Balaena*, and combined all right whales in a single species, *B. glacialis*, with two subspecies, *B. g. glacialis* (North Atlantic and North Pacific), and *B. g. australis* (Southern Hemisphere). However, a 1998 International Whaling Commission (IWC) workshop recommended retaining *Eubalaena* (the right whales) as a separate genus, and noted that the IWC Scientific Committee would consider changing taxonomic status only on the basis of published papers (IWC 2001a). Rosenbaum *et al.* (2000) reviewed genetic data on right whales worldwide and concluded that three species should be recognized. The IWC Scientific Committee, after considering genetic and morphological data, decided at its 2000 annual meeting to accept Rosenbaum *et al.*'s analysis and proposed nomenclature. It was agreed to retain the generic name *Eubalaena* for right whales, and to recognize three species, *E. japonica* in the North Pacific, *E. glacialis* in the North Atlantic, and *E. australis* in the southern hemisphere (IWC 2001a).

Right whales were once common in temperate latitudes of all of the world's oceans. The warm tropical belts in the Atlantic and Pacific Oceans naturally separated the northern and southern populations. In addition, the animals in the North Atlantic and North Pacific were isolated from one another by the continents of North America and Eurasia and the Arctic Ocean.

Two species of right whale occur in Canadian waters, *E. japonica* in the Pacific (Figure 1) and *E. glacialis* in the Atlantic. This report considers the status of *E. japonica* in the eastern North Pacific only; no subspecies are recognized. The common name in English is the eastern North Pacific right whale. The two common names used in French in Canada are baleine noire and baleine franche. The Nuuchah-nulth named the right whale *kw'utskii*, meaning "edible blue mussels on head" (Webster 1982).

Description

The North Pacific right whale, *Eubalaena japonica* (Lacepede 1818; Rosenbaum *et al.* 2000), is a large, robust baleen whale (see cover illustration). Adults can reach up to 18 metres in length, and may weigh over 100 metric tons (Kenney 2001). Females are larger than males, and newborns are 4.5 to 6 metres long at birth (Kenney 2001). Right whales are distinguished by a stocky body, black colouration, sometimes with white patches on their ventral surface, lack of a dorsal fin, a highly-arched narrow rostrum

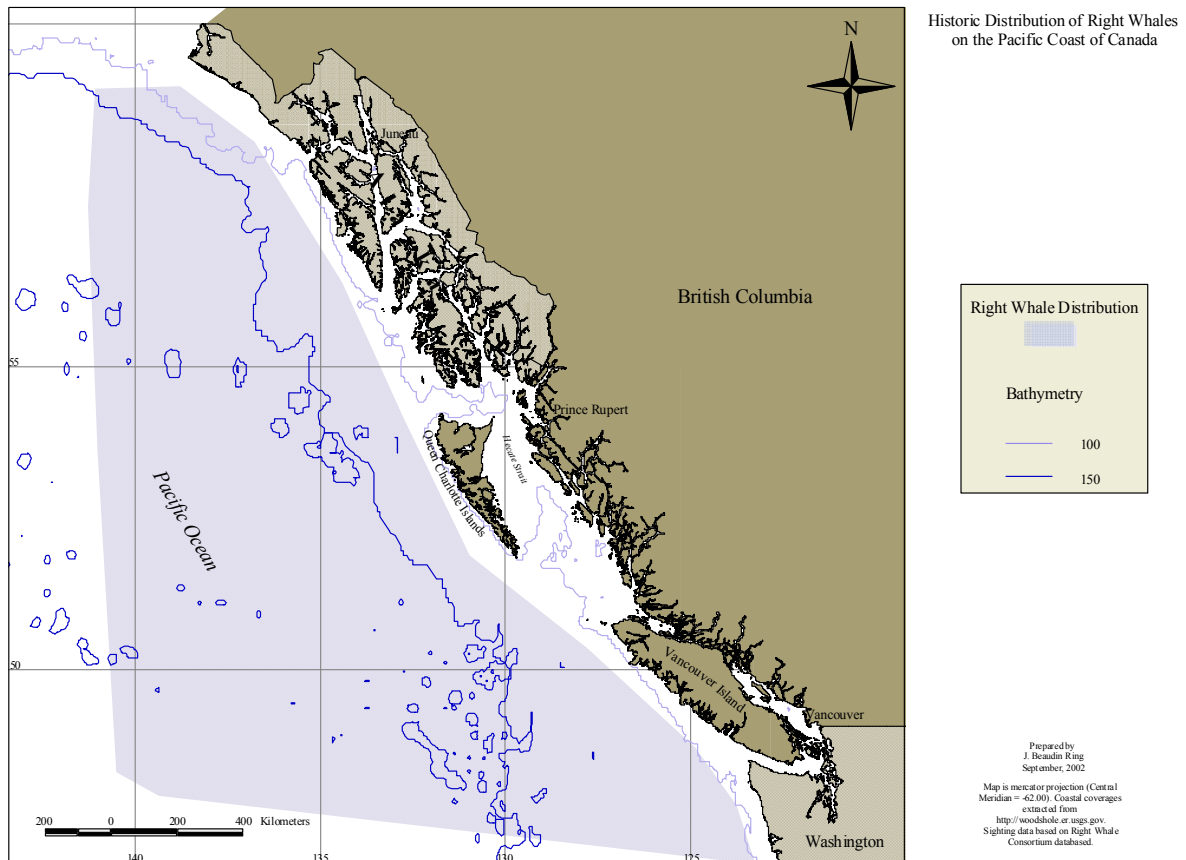


Figure 1. Historic distribution of Right Whales along the Pacific Coast of Canada.

(about $\frac{1}{4}$ of the body length), strongly-bowed lower jaw, and callosities on the head region (Kenney 2001). These callosities are irregular patches of thickened, keratinized columnar epithelial tissue (Kenney 2001). Callosities are found on the rostrum, behind the blowholes, over the eyes, on the corners of the chin, and variably along the lower lip and jaw lines. The arrangement of callosities is unique to each right whale and is used for individual recognition (Kraus *et al.* 1986, Hamilton and Martin 1999). The callosity patches appear white, yellowish or orange because of infestations of *Cyamid* spp. crustaceans called whale lice. Two rows of long (up to about 2.5 m in length), dark baleen plates hang from the upper jaw, with about 225 plates on each side. The tail is broad (up to 6 m tip to tip), deeply notched, and all black with a smooth trailing edge. They have a distinctly V-shaped blow, upwards of 7 metres in height. No significant morphological differences have been documented between right whales in the North Pacific, North Atlantic and Southern Oceans, but North Pacific animals yielded much larger amounts of oil and baleen (Best 1987).

Nationally significant populations

The status of the *E. japonica* is considered the same throughout its range in the eastern North Pacific.

DISTRIBUTION

Global range

E. japonica was once abundant in the North Pacific. Concentrations of right whales were found and exploited in the Gulf of Alaska, eastern Aleutian Islands, south-central Bering Sea, Sea of Okhotsk, and Sea of Japan and offshore waters across much of the North Pacific (Braham and Rice 1984, Scarff 1991, Clapham *et al.* 2004). Figure 2, replicated from Townsend (1935), shows historical whaling data for right whales in the eastern North Pacific from logbook records of American whalerships. Scarff (1991) notes that the apparently discrete populations of right whales in the eastern and western North Pacific reflected in the Townsend charts may be an artifact of the non-random distribution of whalers in the North Pacific and their concentration on the eastern (Gulf of Alaska “Northwest Ground”) and western (Kamchatka/Sea of Okhotsk) areas.

Today the distribution and stock structure of North Pacific right whales is poorly understood (Brownell *et al.* 2001). There are very few data on the current summering and wintering grounds of the eastern North Pacific right whale. According to Gaskin (1987), whaling data assembled by Nemoto (1957, 1959, and 1962) and Gaskin (1976) suggests that most remaining eastern North Pacific right whales occur in summer on the southeastern shelf of the Bering Sea, around the eastern Aleutian Islands, and Kodiak Island. Further studies of historical concentrations and some recent summer sightings indicate that the Bering Sea and Gulf of Alaska may contain important feeding grounds (Scarff 1986, Scarff 1991, Goddard and Rugh 1998, Moore *et al.* 2000, Brownell *et al.* 2001, Clapham *et al.* 2004, Mellinger *et al.* 2004). The location of calving grounds is unknown.

Twentieth century sightings support a two stock hypothesis where there appear to be two populations in the North Pacific, at least with regard to concentrations on feeding grounds—one in the east and one in the west, with the possibility that the western group may occur in two separate sub-populations (Klumov 1962, Brownell *et al.* 2001). However, this division of populations is not conclusive, and remains open (IWC 2001a).

Post-whaling 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 (Gilmore 1956, Herman *et al.* 1980, Berzin and Doroshenko 1982, Bruggeman *et al.* 1984, Scarff 1986, Gaskin 1987, NMFS 1991, Gendron *et al.* 1999, Salden and Mickelson 1999).

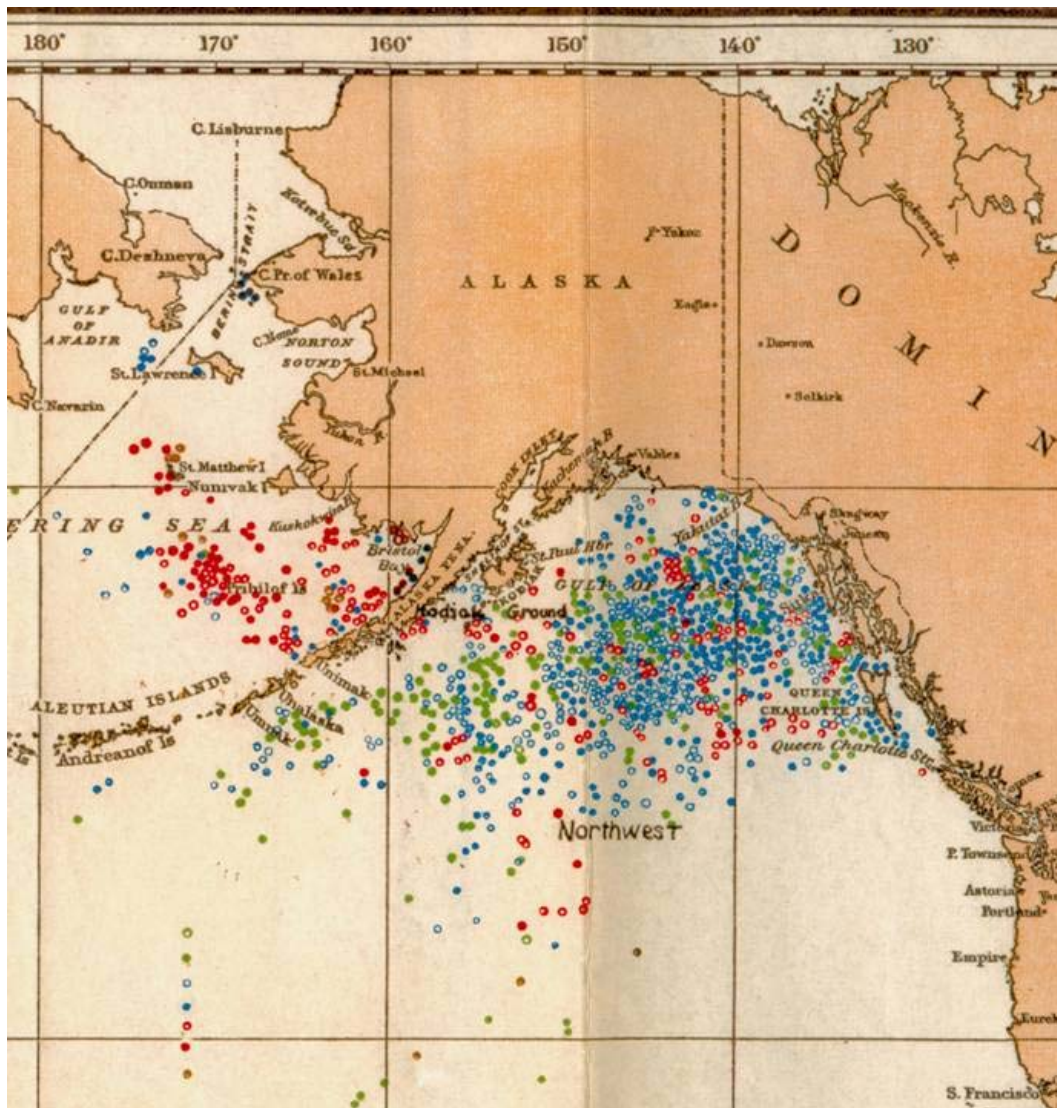


Figure 2. Map of historical right whale catches in the eastern North Pacific from logbook records of American whale ships (replicated from Townsend 1935). The dot colour represents month of catch.

Canadian range

Presently, there are not any known concentrations of eastern North Pacific right whales in Canadian waters. There has not however, been any significant sighting effort in recent decades. Historical distribution from offshore whaling data (1785-1913) show that right whales were present in British Columbia waters during the months of April to October (Townsend 1935, Clapham *et al.* 2004), possibly feeding or migrating to or from calving grounds (Figure 2).

20th Century British Columbia whalers (1900-1951) who operated mainly in coastal waters took only seven right whales (Figure 3 and Table 1). The last right whale sighting that may have been in British Columbia waters was in 1970 by S. Wada while on board a Japanese scoutboat west of the Queen Charlotte Islands (Table 1). However, due to the range of coordinates given for this sighting, it is possible that this sighting took place outside British Columbia waters. Braham (1986) published a reference to an unconfirmed sighting of a right whale at Swiftsure Bank on the Canadian side near the mouth of the Strait of Juan de Fuca in 1983 (Reeves and Leatherwood 1985 in Braham 1986). However, further investigation indicates uncertainty about the species identification.

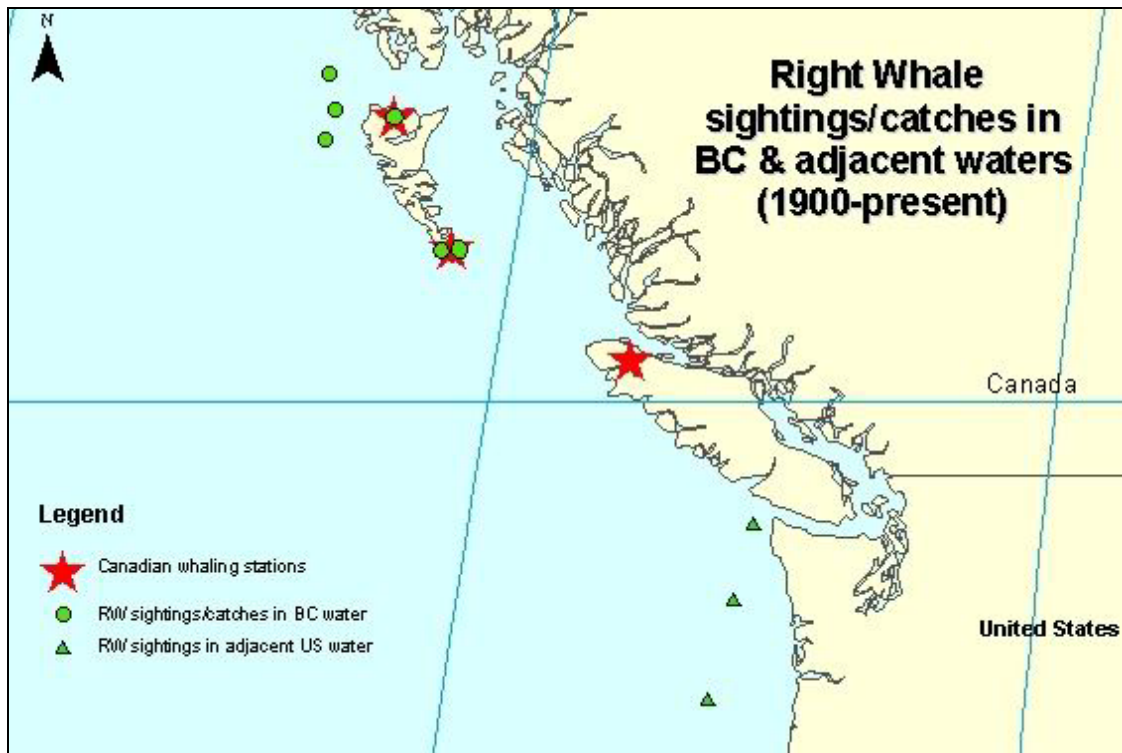


Figure 3. Right whale sightings/catches in British Columbia waters and in US water adjacent to the Canadian border, 1900-2002. Note that 1) coordinates were not found for the catches positioned at whaling stations, and 2) the range of coordinates for the 1970 Wada sighting are too broad to plot on this map.

There have not been any confirmed sightings in Canadian waters for over five decades. However, between 1959 and 1992, three sightings of seven animals were recorded in US waters near the B.C./Washington border in close proximity to Canadian waters (Figure 3, Table 2). In the period 1958 and 1977, only seven offshore records exist (i.e. outside the 200 mile limit to 145° W) (Table 3).

Table 1. Right whale catches and sightings in British Columbia waters, 1900-2002.

Date	Location	Type	Number	Reference
June, 1914	Naden Harbour (no coordinates)	Catch	1	Nichol <i>et al.</i> 2002
June, 1918	Rose Harbour (no coordinates)	Catch	1	Nichol <i>et al.</i> 2002
June 15, 1924	Naden Harbour (54°35 N, 133°55 W)	Catch	1	Nichol <i>et al.</i> 2002
June 24, 1924	Naden Harbour (54°05 N, 133°40 W)	Catch	1	Nichol <i>et al.</i> 2002
June 10, 1926	Naden Harbour (53°40 N, 133°45 W)	Catch	1	Pike and MacAskie 1969
June 10, 1929	Rose Harbour (no coordinates)	Catch	1	Nichol <i>et al.</i> 2002
July 18, 1951	Coal Harbour (50° N, 128° W)	Catch	1	Pike and MacAskie 1969
1970	W of Queen Charlotte Islands (50-55° N, 130-140° W)	Sighting	2	Wada 1975†
1983	Juan de Fuca Strait (48° 33 N, 124° 39 W)	Sighting	2	Reeves and Leatherwood 1985 in Braham 1986††

†Due to the range of coordinates given for this sighting, there is a low probability that this sighting occurred in British Columbia waters.

††This is an unconfirmed sighting.

Table 2. Right whale sightings in waters adjacent to Canadian waters, 1900-2002.

Date	Location	Number	Reference
April 8, 1959	SW of Grays Harbour, Washington (45°55 N, 125°25 W)	3	Fiscus and Niggol 1965
January 17, 1967	W of Cape Flaherty, Washington (48°20 N, 125°06 W)	3	Rice and Fiscus 1968
May 24, 1992	NW of Grays Harbour, Washington (47°17 N, 125°11 W)	1	Rowlett <i>et al.</i> 1994

Table 3. Offshore right whale sightings, 1900-2002.

Date	Location	Number	Reference
1958-1967	50° N, 145° W	2	Pike and MacAskie 1969
1958-1967	54° N, 155° W	1	Pike and MacAskie 1969
1963	51° N, 145° W	200	Berzin and Doroshenko 1982 (cited in Brownell <i>et al.</i> 2001)†
1973	45-50° N, 140-150° W	1	Wada 1975
1974	40-50° N, 140-160° W	1	Anonymous 1976
1975	40-45° N, 140-150° W	2	Wada 1977
1977	40-50° N, 140-145° W	1	Wada 1979
1977	45-50° N, 135-140° W	2	Wada 1979

†Note: Berzin and Rovnin (1966) say 200 in all eastern North Pacific in 1963, and no large sightings are seen near this location in their figures and the accuracy of this number is in question (Brownell *et al.* 2001).

HABITAT

Habitat requirements

Virtually nothing is known of the habitat required for eastern North Pacific right whales.

Trends

So little is currently known about this population that it is impossible to comment on habitat trends.

Protection/ownership

The Fisheries Act, Oceans Act and Species at Risk Act are intended to protect the right whales and their habitat within Canadian jurisdiction.

BIOLOGY

Basic aspects of the biology and ecology of the North Pacific right whale remain poorly understood.

Reproduction

The location of breeding and the calving grounds is unknown (Brownell *et al.* 2001). Nothing is known about reproduction, longevity, age at sexual maturity, or sex ratio, but reproductive rates are likely to be low based upon information from other right whale species.

Until a sighting of a cow and calf in the Bering Sea on August 24, 2002 (LeDuc 2004) there had been no confirmed sightings of calves in the eastern North Pacific since at least 1900 (Brownell *et al.* 2001). Two or three cow-calf pairs were observed in the southeastern Bering Sea during the summer of 2004 (Robert Pitman, Southwest Fisheries Center, NMFS, personal communication).

Survival

There are no reliable estimates of survival for the eastern North Pacific right whale.

Physiology

Virtually nothing is known about the physiology of eastern North Pacific right whales.

Movements/dispersal

Migratory patterns of the North Pacific right whale are unknown, although in other oceans right whales generally spend the summer on high-latitude feeding grounds and migrate to more temperate waters during the winter (Braham and Rice 1984). Historically, North Pacific right whales were found across a wide range of latitudes during both summer and winter, which is evidence of a staggered or diffuse migration (Scarff 1991). This seasonal movement is also evident in monthly plots of 20th century and historical records (Clapham *et al.* 2004).

Nutrition and interspecific interactions

North Pacific right whales are low trophic level filter feeders. They feed entirely on zooplankton, primarily copepods (*Calanus* spp.) (Omura *et al.* 1969). A single whale can eat several metric tons of copepods a day. It is the right whales' dependence on large, dense aggregations of prey that determines much of their distribution.

POPULATION SIZES AND TRENDS

The pre-exploitation abundance of North Pacific right whales has been estimated to be more than 11,000 animals (NMFS 1991) and perhaps twice that number (Scarff 2001). Today they are extremely rare in the eastern North Pacific, having been reduced to near extinction by 19th century pelagic whaling and illegal Soviet whaling in the 1960s (Scarff 1991, Doroshenko 2000, Brownell *et al.* 2001).

Since 1997, there have been a few sightings of eastern North Pacific right whales in the southeastern Bering Sea and acoustic data suggest that the animals remain there from August until November (Munger *et al.* 2003). LeDuc *et al.* (2001) reported on the identification of 11 individuals using photographic techniques. These 11 animals were all biopsy sampled. On the basis of genotypes, there were only six unique individuals thus the total number of individuals represented by the 11 animals was six (LeDuc *et al.* 2001). All six were genetically sexed as males; two haplotypes were represented (LeDuc *et al.* 2001). Among nine additional photographed sightings in 2002 was one mother with a calf (LeDuc 2004). An aggregation of 25-30 animals, including 2-3 cow-calf pairs, was observed in the southeastern Bering Sea during the summer of 2004 (Robert Pitman, Southwest Fisheries Center, NMFS, personal communication). The implication from the preliminary genetic work that females may be few in number must be tempered by the possibility that males may be easier to biopsy sample or there is geographic segregation by sex on the summering grounds (LeDuc *et al.* 2001). Based on the extensive area surveyed (LeDuc *et al.* 2001, LeDuc 2004) and clustering of the sightings it is possible that the population in the eastern North Pacific could be as low as a few tens of animals.

LIMITING FACTORS AND THREATS

Whaling

Traditional whaling around Japan and Korea greatly reduced the population of right whales from the western North Pacific (Gaskin 1987). In the eastern North Pacific, Monks *et al.* (2001) states that right whales were hunted by central and northern Nuu-chah-nulth (Nootkan) tribes and they were pursued whenever they were seen. The Haida of the Queen Charlotte Islands also may have whaled, although it is unknown whether right whales were taken (Acheson and Wigen 2002). Various aboriginal peoples from Washington State were known to take this species (Mitchell 1979), although it was not usually the main target of their hunts, nor was it taken in great numbers (Brownell *et al.* 2001).

Commercial open-boat whaling for right whales began in the North Pacific in 1835 and was most intense during the decade 1839-1848, which accounted for approximately 80 percent of the historic commercial catch of right whales (Scarff 1991, 2001). The estimated right whale catches by American whalers amounted to at least 14,500 animals (Best 1987, IWC 1986), and Scarff (2001) estimates that the total whaling-related mortality during the period 1839-1909, including mortality of struck-but-lost whales and non-American whalers, was in the range of 26,500-37,000 animals.

Although right whales received some international protection starting as early as 1935, important North Pacific whaling countries—Japan and the Soviet Union—did not sign the international convention and continued whaling through World War II (Scarff 1986). The first comprehensive prohibition on commercial whaling, including shore-based whaling agreed to by all the major North Pacific whaling nations, did not take effect until 1946. However, “research whaling” was still permitted under this treaty and Japan legally took 13 right whales and the Soviet Union killed 10 right whales during the 1950s and 1960s.

Illegal whaling in the North Pacific also occurred on a much larger scale. Brownell *et al.* (2001) factored in illegal hunting by the Soviet Union in order to address the question of the present status of North Pacific right whales. Hundreds of right whales were illegally hunted in the Kuril Islands and the Okhotsk Sea, and 372 were killed in the eastern North Pacific, notably the Gulf of Alaska and southeastern Bering Sea (Yablokov 1994, Zemsky *et al.* 1995, Tormosov *et al.* 1998, Doroshenko 2000, Brownell *et al.* 2001). Remnant populations may have been gradually recovering from intense commercial whaling until the 1960s, when these illegal Soviet catches compromised this recovery (Brownell *et al.* 2001).

In Canadian waters, aboriginal whaling is not illegal but it is not currently practiced in British Columbia. Should aboriginal whaling be renewed in British Columbia, it is very unlikely that right whales would be targets.

Population Numbers and Genetic Diversity

Eastern North Pacific right whales have a critically small population (maybe a few tens of animals), which could result in low reproduction from the demographic effects of small population size and they are at high risk from stochastic effects, which could limit their recovery.

Marine Traffic and Ship Strikes

Ship strikes are the most significant documented human-induced source of mortality for right whales in the western North Atlantic (Knowlton and Kraus 2001). It is not known to be a significant source of mortality in the eastern North Pacific. However, this threat is likely under-reported for all whales in the waters off western Canada due to the remoteness of most of the coast.

Entanglement in Fishing Gear

Entanglement in fishing gear is another major source of mortality for western North Atlantic right whales (Kraus 1990, Kenney and Kraus 1993, Knowlton and Kraus 2001, Clapham *et al.* 1999, IWC 2001b). It is possible that right whales in the eastern North Pacific are also vulnerable to this source of mortality given the use of similar types of fishing gear in their historic range. T. Miyashita reported an entangled whale in the Okhotsk Sea in 1992 (Brownell *et al.* 2001). The Russian gill net fishery was implicated in the death of two right whales: one in 1983, and the other off the Kamchatka Peninsula (Russia) in 1989 (NMFS 1991, Kornev 1994). Although entangled whales have not been reported in the Bering Sea and further south into Canadian waters, there are extensive fisheries in the eastern Bering Sea and entanglements can be considered a threat to right whales.

Noise

Right whales are thought to use sound for communication, navigation, attracting mates, or detection of predators and prey (Clark 1994, McDonald and Moore 2002). Sources of ambient noise from human activity include seismic testing for oil and gas exploration, active sonar and explosives testing by the military, underwater noisemakers to deter marine mammals from fishing nets and fish pens, marine experiments that involve the use of loud sounds, and increasing levels of noise from everyday boat and ship traffic (Anonymous 2000).

Man-made noise could potentially interfere with acoustic communication, particularly since the major sound energy from shipping overlaps the lower frequencies of right whale signals (Richardson *et al.* 1995, Kenney 2001). It is possible that high levels of ambient noise in the ocean could lead to displacement from migration routes or important habitats, disrupt the communication ability of right whales such as mating calls over large distances, perhaps reducing mating opportunities. Such activities should be of concern in Canadian waters, particularly in areas where oil and gas exploration,

pipeline construction, high levels of marine traffic and military exercises are conducted or proposed.

Climate Change and Food Supply

Climate-driven regime shifts can cause major changes in ecological relationships over large-scale oceanographic areas (Francis and Hare 1994), and are manifested faster at lower trophic levels in marine ecosystems (Benson and Trites 2002). Right whales feed exclusively on zooplankton, and primarily on large calanoid copepods. They have a narrow range of acceptable prey species and require prey in high concentrations. The presence of such concentrations is dependent upon physical factors, such as water structure, currents, and temperature. This combination of a narrow range of prey, and the requirement of high concentrations of prey dependent upon physical factors might make the right whale more sensitive than other cetaceans to impacts from global climate change (Kenney 2001).

Pollution

The effect of pollution and contaminants on the recovery of eastern North Pacific right whales is unknown. In general, right whales feed on copepods in various depths of the water column from the surface to the bottom. In convergent zones and slicks where surface currents concentrate flotsam and jetsam, they are susceptible to ingesting contaminants, oil, and floating garbage.

SPECIAL SIGNIFICANCE OF THE SPECIES

The eastern North Pacific right whale is among the most endangered of all the large whales, and it is also the most poorly studied.

EXISTING PROTECTION OR OTHER STATUS

All right whales, worldwide, are protected under the International Convention for the Regulation of Whaling, implemented by the International Whaling Commission. The International Whaling Committee has protected right whales from commercial whaling since 1949, when Japan and the Soviet Union joined the IWC. However, extensive illegal whaling by the Soviet Union into the 1960s has been documented (Doroshenko 2000, Brownell *et al.* 2001). Although Japan has continued to take cetaceans under scientific licenses, right whales have not been targeted.

Right whales in Canada are protected under the Marine Mammal Regulations (MMR) of the federal Fisheries Act as well as under the Species At Risk Act (SARA) (proclaimed June 5, 2003). The SARA prohibits killing, harming and harassing a threatened or endangered species and protects their critical habitat. Recovery planning is also a legal requirement under the SARA.

Right whales—both Pacific and Atlantic—were listed by COSEWIC as “endangered” in 1980, at which time there was considered to be only one species using Canadian waters.

In US waters, northern right whales were first protected by the Endangered Species Conservation Act—the precursor to the ESA—and are now protected by both the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA).

The northern right whale—which included both the North Atlantic and North Pacific populations—was listed as endangered under the Endangered Species Conservation Act in June 1970. The North Pacific right whale was listed as “endangered” under the ESA of 1973, and designated as “depleted” under the MMPA.

International assessment by the IUCN (The World Conservation Union) designated the Northern right whale (*Eubalaena glacialis*) as “endangered” in 1996. This assessment did not distinguish between species or populations in the Pacific, Atlantic and Arctic Sea.

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its goal is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Right whales were listed by CITES in 1975 in Appendix 1, which consists of species threatened most with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.

SUMMARY OF STATUS REPORT

This species is clearly at risk. The greatest foreseeable obstacle to recovery is the rarity of eastern North Pacific right whales. Although there has been very little search effort in Canadian waters, sightings of right whales in adjacent US waters are rare despite considerable survey effort. When found, they are usually as single animals or in small groups. There have been a total of less than 50 individuals found in recent years in the eastern North Pacific, principally in the southeastern Bering Sea. There are no means to calculate the reproductive rate, age structure of the population or accurately assess or even identify limiting factors beyond those associated with critically small population size.

TECHNICAL SUMMARY

Eubalaena japonica

North Pacific Right Whale

Baleine noire du Pacifique Nord

Range of Occurrence in Canada: Eastern North Pacific

Extent and Area Information	
• <i>Extent of occurrence (EO)(km²)</i>	Unknown
• <i>Specify trend in EO</i>	Not applicable
• <i>Are there extreme fluctuations in EO?</i>	Not applicable
• <i>Area of occupancy (AO) (km²)</i>	Unknown
• <i>Specify trend in AO</i>	Not applicable
• <i>Are there extreme fluctuations in AO?</i>	Not applicable
• <i>Number of known or inferred current locations</i>	Not applicable
• <i>Specify trend in #</i>	Not applicable
• <i>Are there extreme fluctuations in number of locations?</i>	Not applicable
• <i>Specify trend in area, extent or quality of habitat</i>	Unknown
Population Information	
• <i>Generation time (average age of parents in the population)</i>	~ 20 years (if similar to other species of right whales)
• <i>Number of mature individuals</i>	Perhaps a few tens
• <i>Total population trend:</i>	Unknown
• <i>% decline over the last/next 10 years or 3 generations.</i>	Not applicable
• <i>Are there extreme fluctuations in number of mature individuals?</i>	Unlikely
• <i>Is the total population severely fragmented?</i>	Unknown
• <i>Specify trend in number of populations</i>	Not applicable
• <i>Are there extreme fluctuations in number of populations?</i>	No
• <i>List populations with number of mature individuals in each:</i>	
Threats (actual or imminent threats to populations or habitats)	
- serious injury and mortality from collisions with vessels (if similar to North Atlantic right whales)	
- serious injury and mortality from entanglement in fixed fishing gear (if similar to North Atlantic right whales)	
- low reproductive rates (if similar to North Atlantic right whales)	
• <i>Status of outside population(s)?</i> USA: Endangered	
• <i>Is immigration known or possible?</i>	Yes (western North Pacific)
• <i>Would immigrants be adapted to survive in Canada?</i>	Likely
• <i>Is there sufficient habitat for immigrants in Canada?</i>	Uncertain/Likely
• <i>Is rescue from outside populations likely?</i>	Low
Quantitative Analysis	
	Not applicable

Status and Reasons for Designation

Status: Endangered	Alpha-numeric code: A1d; D1
Reasons for Designation: Although there have not been sightings of this species in the last 50 years in Canadian waters, there have been sightings both south and north of British Columbia waters. Therefore it is not appropriate to classify the species as extirpated. The total population in the eastern North Pacific likely numbers a few tens of animals.	
Applicability of Criteria	
Criterion A: Declining Total Population: Meets Endangered A1d (suspected greater than 70% reduction over last 3 generations, 75 years; generation time estimated to be about 25 years from data on other right whales).	
Criterion B: Small Distribution and Decline or Fluctuation: Probably large EO and AO	
Criterion C: Small Total Population Size and Decline: Not known to be declining	
Criterion D: Very Small Population or Restricted Distribution: Meets Endangered, D1 (less than 250 mature individuals)	
Criterion E: Quantitative Analysis: Not applicable	

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AUTHORITIES CONTACTED

All relevant federal (Fisheries and Oceans, Canada) and provincial agencies were contacted for any available governmental information on this species.

COLLECTIONS EXAMINED

No collections were examined in the preparation of this report.