COSEWIC
Status Appraisal Summary

on the

North Pacific Right Whale
Eubalaena japonica

in Canada

ENDANGERED
2015

COSEWIC
Committee on the Status
of Endangered Wildlife
in Canada

COSEPAC
Comité sur la situation
des espèces en péril
au Canada

COSEWIC status appraisal summaries are working documents used in assigning the status of wildlife species suspected of being at risk in Canada. This document may be cited as follows:

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COSEWIC
Assessment Summary

Assessment Summary – May 2015

Common name
North Pacific Right Whale

Scientific name
Eubalaena japonica

Status
Endangered

Reason for designation
After an absence of verified sightings of the species in Canadian waters for over 60 years, sightings of two separate individuals in 2013 confirmed that the current range includes Canadian waters. The numbers in the eastern North Pacific are extremely low, with estimates of fewer than 50 individuals in the southeastern Bering Sea, the only known area of regular occurrence of this population. It is most unlikely that the number of mature animals exceeds 250 individuals over its entire range.

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 in 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 and May 2015.

COSEWIC
Status Appraisal Summary

Eubalaena japonica

North Pacific Right Whale — Baleine noire du Pacifique Nord

Range of occurrence in Canada: Pacific Ocean

Status History

COSEWIC: The Right Whale was considered a single species and designated Endangered in 1980. Status re-examined and confirmed in April 1985 and in 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 and May 2015.

Evidence (indicate as applicable):

Wildlife species:

Change in eligibility, taxonomy or designatable units: yes ☐ no ☒

Explanation: No changes.

Range:

Change in Extent of Occurrence (EO): yes ☐ no ☐ unk ☒

Change in Index of Area of Occupancy (IAO) : yes ☐ no ☐ unk ☒

*Change in number of known or inferred current locations**: yes ☐ no ☐ unk ☒

Significant new survey information yes ☒ no ☐

Explanation:

Sightings of two different individuals off the north and south coasts of British Columbia in 2013 (see Population Information section below) confirmed that the current range of the species includes Canadian Pacific waters. Prior to these sightings, the last confirmed North Pacific Right Whale seen in these waters was killed by whalers in 1951. Until very recently, it had been uncertain if the species still occurs in Canada. The range of the species in Canadian waters remains uncertain.

* Use the IUCN definition of “location”

Population Information:

Change in number of mature individuals: yes ☐ no ☐ unk ☒

Change in total population trend: yes ☐ no ☐ unk ☒

Change in severity of population fragmentation: yes ☐ no ☐ unk ☒

Change in trend in area and/or quality of habitat: yes ☐ no ☐ unk ☒

Significant new survey information yes ☒ no ☐

Explanation:

The North Pacific Right Whale was almost extirpated by intensive commercial whaling in the 19th and 20th centuries and remains extremely rare today, particularly in the eastern North Pacific. Although some recovery may have been underway by the mid-20th century, illegal whaling by the former Soviet Union in the 1960s likely further depleted the remnant population. Recent evidence reveals that this illegal whaling was more extensive than once thought. Records indicate that at least 529 North Pacific Right Whales were killed from 1962 to1968 for the Eastern North Pacific, compared to the previously reported number of 372 whales for the same time period (Ivashchenko and Clapham 2012).

Once considered to have a continuous distribution across the North Pacific, recent re-analysis of historical whaling records (Josephson *et al*. 2008), habitat modelling (Gregr 2011) and genetic analyses (LeDuc *et al*. 2012) support the existence of two discrete populations of the species, one in the western North Pacific including the Sea of Okhotsk, and one in the eastern North Pacific including the eastern Bering Sea. Although there is no current population size estimate for the western population, the IUCN's assessment (Reilly *et al*. 2008) of "~400 animals for the Okhotsk Sea and ~100 for the rest of the North Pacific" is considered reasonable (e.g., NMFS 2013).

Significant new information is available on the eastern population of North Pacific Right Whales. Since the discovery in the late 1990s of an area of predictable summer occurrence in the southeastern Bering Sea, dedicated surveys have been undertaken to estimate numbers. No quantitative estimate was available for inclusion in the last status update (COSEWIC 2004). Estimates of numbers for the eastern North Pacific (including the southeastern Bering Sea) using three independent techniques (photo-identification, DNA genotyping, and acoustic monitoring) have since been published and are summarized here.

Photographs of natural markings to identify individuals have provided both minimum counts of animals and quantitative estimates using mark-recapture methods. The largest number of individuals identified in the Bering Sea in any single year was 17 in 2004 (Wade *et al.* 2006). From photographs of 18 uniquely marked individuals obtained during 1999–2008 in the southeastern Bering Sea and along the Aleutian Islands, Wade *et al*. (2011a) estimated 31 individuals (95% CI: 23–54) using a mark-recapture model. This model was also used to derive an estimate of 28 animals (95% CI: 24–42) from 21 individuals identified by genotyping. Of these, an estimated 8 animals were female (95% CI: 7–18) and 20 were male (95% CI: 17–37). Finally, Right Whale vocalizations recorded on three autonomous recording instruments moored in the southeastern Bering Sea during 2001–2002 and 2005–2006 were used in an acoustic cue-counting distance sampling model to obtain an estimate of 25 animals (95% CI: 13–47) (Marques *et al*. 2011). The results of these three different methods to estimate numbers are consistent and support earlier suggestions that the numbers using the southeastern Bering Sea are extremely small.

Sightings of Right Whales in the Gulf of Alaska are far fewer in number than in the Bering Sea, but there has been relatively little survey effort in the Gulf, notably in offshore waters where the species was historically widely distributed (Brownell *et al.* 2001; Ivashchenko and Clapham 2012; Allen and Angliss 2013; National Marine Fisheries Service (NMFS) 2013). Waite *et al*. (2003) observed a single Right Whale on Albatross Bank, south of Kodiak Island, Alaska, in July 1998. Subsequent acoustic monitoring using a submerged recorder in this area during 2000 detected probable Right Whale calls (Waite *et al*. 2003; Mellinger *et al*. 2004). Wade *et al*. (2011b) documented 4 North Pacific Right Whales during 2004–2006 on Albatross Bank; photo-identification and genotyping of 2 whales failed to reveal a match to Right Whales in the Bering Sea. The whales were found in the Barnabus Trough area of Albatross Bank and were associated with high densities of potential prey, euphausiids and copepods. This location as well as the area of regular Right Whale occurrence in the southeastern Bering Sea were designated as critical habitat under the US *Endangered Species Act* in 2006 (NMFS 2013).

In addition to very low numbers, North Pacific Right Whales sampled in Alaska have very low genetic

diversity (LeDuc *et al*. 2012). This, plus the infrequency of observations of females and calves, extremely low effective population size, and possible isolation from western North Pacific Right Whales led LeDuc *et al*. (2012) to conclude that the eastern population is at immediate risk of extirpation.

Sightings of North Pacific Right Whales in the northeastern Pacific south of the Gulf of Alaska are extremely rare. Only nine confirmed sightings were documented between 1980 and 1998 and none from 1999 to 2012 despite substantial survey effort (Brownell *et al*. 2001; Clapham *et al*. 2004; Sheldon *et al*. 2005; Allen and Angliss 2013; NMFS 2013). None was seen during extensive ship-based line-transect surveys off the coasts of California, Oregon and Washington to 300 nautical miles offshore (about 131° W longitude) undertaken in 2005 and 2008 (Forney 2007; Barlow 2010). No Right Whales were sighted during dedicated shipboard cetacean surveys off Canada's Pacific coast undertaken by DFO during 2002–2012, which involved over 35,000 km of transect survey effort (Ford *et al*. 2010; Cetacean Research Program, Pacific Biological Station, DFO Pacific, unpubl. data).

In 2013, observations of two different North Pacific Right Whales were made off the coast of British Columbia during DFO cetacean surveys (Cetacean Research Program, Pacific Biological Station, DFO Pacific, unpubl. data). An adult animal was observed on three days during 9-12 June 2013 off the northwest coast of Haida Gwaii (53° 37.5'N, 133° 17.2'W). It was seen to be feeding at the surface on copepods. A skin sample collected for genetic analysis indicated that this animal was a female and confirmed that it was a North Pacific Right Whale (i.e., not an extralimital occurrence of a North Atlantic Right Whale or Southern Right Whale). Photo-identification indicated that it was not in the catalogue of known individuals maintained by the National Marine Mammal Laboratory (NOAA, Seattle, WA). The second sighting involved a different animal that was seen on Swiftsure Bank off southwestern Vancouver Island on 25 October 2013 (48° 31.04' N, 124° 52.3' W). It was a large adult and had distinctive scars on its rostrum that were likely the result of entanglement injuries. As with the June sighting, this individual did not match to any animals in the NMML photo-identification catalogue. No skin sample was collected and therefore sex and population identity could not be determined genetically. Photographs of this animal were compared to the North Atlantic photo-identification catalogue and no match was found (Brown pers. comm. 2014).

Threats:

Change in nature and/or severity of threats: yes ☐ no ☐ unk ☒

Explanation:

Anthropogenic threats identified in the 2004 status report include those facing most baleen whales: ship strikes, fisheries interactions, acoustic disturbance, habitat degradation, and pollution. The nature and severity of these threats in the Canadian Pacific are unlikely to have diminished and in some cases may be increasing. Shipping traffic from ports along the west coast of North America is increasing (Government of British Columbia 2005) and associated underwater noise has increased significantly in recent decades (Hildebrand 2009). Increased volumes of shipping traffic by large ships are anticipated if proposed liquid natural gas or bitumen ports are built on the B.C. coast. Like the North Atlantic Right Whale, the North Pacific Right Whale may be vulnerable to ship strikes and entanglement in fishing gear. Although no cases of either potential source of injury or mortality have been reported for this species, in Canada or Alaska, the whale sighted off the coast of southern British Columbia in October 2013 had scars on its rostrum consistent with a past entanglement.

Protection:

Change in effective protection: yes ☐ no ☒

Explanation:

The North Pacific Right Whale was listed as Endangered under SARA in 2004 but this has not led to a change in effective protection. Critical habitat for the species, which would be protected under the *Species at Risk Act*, has not yet been identified (Fisheries and Oceans Canada 2011).

Rescue Effect:

Change in evidence of rescue effect: yes ☐ no ☒

Explanation:

There have been only two confirmed sightings of this species in Canadian waters since 1951, and these two animals could not be matched with any individuals in the very small catalogue of photo-identified North Pacific Right Whales. These two individuals cannot be credibly interpreted as signifying a 'rescue effect'.

Quantitative Analysis:

Change in estimated probability of extirpation: yes ☐ no ☐ unk ☒

Details: No quantitative analysis has been conducted.

Summary and Additional Considerations: [e.g., recovery efforts]

A Recovery Strategy for the North Pacific Right Whale in Canada was finalized and published in August 2011 (Fisheries and Oceans Canada 2011). The recovery goal is to "increase the probability of survival, and attain long-term viability, of the North Pacific Right Whale in Canadian waters." Its first, short-term objective is to "confirm the presence of North Pacific Right Whales in Pacific Canadian waters". Once presence has been confirmed (as it was in 2013), five additional long-term objectives are proposed: to improve understanding of the population structure, population size, and seasonal distribution, to promote recovery by identifying critical habitat, and to mitigate anthropogenic threats. An Action Plan to implement the Recovery Strategy is currently being finalized by DFO.

A final Recovery Plan for the North Pacific Right Whale was published in 2013 by the US National Marine Fisheries Service (NMFS 2013). Areas of regular sightings of North Pacific Right Whales in the southeastern Bering Sea and south of Kodiak Island, Alaska, were designated as critical habitat under the US *Endangered Species Act* in 2006.

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Randall Reeves, Okapi Wildlife Associates, 27 Chandler Lane, Hudson, Quebec, J0P 1H0, Canada

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TECHNICAL SUMMARY

Eubalaena japonica

North Pacific Right Whale — Baleine noire du Pacifique Nord

Range of occurrence in Canada: Pacific Ocean

Demographic Information

Generation time [Calculated using gen(r=0) = average age of mothers at pre-disturbance state, as estimated from a simplified Leslie matrix; Taylor *et al*. (2007)]	29.8 yrs
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	Unknown
Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations]	Unknown
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations].	>50%
[Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations].	Unknown
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any [10 years, or 3 generations] period, over a time period including both the past and the future.	>50%
Are the causes of the decline clearly reversible and understood and ceased? The cause (whaling) has ceased but the decline is not clearly reversible, nor is the species' failure to recover understood.	No
Are there extreme fluctuations in number of mature individuals?	Unlikely

Extent and Occupancy Information

Estimated extent of occurrence	Unknown
Index of area of occupancy (IAO) (Always report 2x2 grid value).	Unknown
Is the total population severely fragmented?	Unknown
Number of locations*	Unknown
Is there an [observed, inferred, or projected] continuing decline in extent of occurrence?	Unknown
Is there an [observed, inferred, or projected] continuing decline in index of area of occupancy?	Unknown
Is there an [observed, inferred, or projected] continuing decline in number of populations?	Unlikely
Is there an [observed, inferred, or projected] continuing decline in number of locations*?	Unknown

* See Definitions and Abbreviations on COSEWIC website and IUCN 2010 for more information on this term.

Is there an [observed, inferred, or projected] continuing decline in [area, extent and/or quality] of habitat?	Unknown
Are there extreme fluctuations in number of populations?	No
Are there extreme fluctuations in number of locations*?	Unknown
Are there extreme fluctuations in extent of occurrence?	Unknown
Are there extreme fluctuations in index of area of occupancy?	Unknown

Number of Mature Individuals (in each population)

Population	N Mature Individuals
Eastern North Pacific	Likely < 50
Total	< 50

Quantitative Analysis

Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100 years].	Not conducted

Threats (actual or imminent, to populations or habitats)

- serious injury and mortality from collisions with vessels
- serious injury and mortality from entanglement in fixed fishing gear

Rescue Effect (immigration from outside Canada)

Status of outside population(s)? USA: Endangered; IUCN: Critically Endangered	
Is immigration known or possible?	Possible, from western Pacific
Would immigrants be adapted to survive in Canada?	Likely
Is there sufficient habitat for immigrants in Canada?	Likely
Is rescue from outside populations likely? Low numbers outside Canada	No

Status History

COSEWIC: The Right Whale was considered a single species and designated Endangered in 1980. Status re-examined and confirmed in April 1985 and in 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 and May 2015.

* See Definitions and Abbreviations on COSEWIC website and IUCN 2010 for more information on this term.

Status and Reasons for Designation

Status: Endangered	**Alpha-numeric Code:** A2abd; D1
Reasons for Designation: After an absence of verified sightings of the species in Canadian waters for over 60 years, sightings of two separate individuals in 2013 confirmed that the current range includes Canadian waters. The numbers in the eastern North Pacific are extremely low, with estimates of fewer than 50 individuals in the southeastern Bering Sea, the only known area of regular occurrence of this population. It is most unlikely that the number of mature animals exceeds 250 individuals over its entire range.	

Applicability of Criteria

Criterion A (Decline in Total Number of Mature Individuals): Meets Endangered A2abd as there has been a >50% reduction in total number of mature individuals over three generations (i.e., over the past 90 years) based on (a) direct observation, (b) survey estimates, and (d) historical whaling records.
Criterion B (Small Distribution Range and Decline or Fluctuation): Not applicable.
Criterion C (Small and Declining Number of Mature Individuals): Not applicable.
Criterion D (Very Small or Restricted Total Population): Meets Endangered D1 as it is most unlikely that the number of mature animals is more than 250 individuals over its entire range.
Criterion E (Quantitative Analysis): Not done.

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 5, 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 entities (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 science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

DEFINITIONS
(2015)

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 is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 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 category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' 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. Definition of the (DD) category revised in 2006.

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