

Addendum
to the
2009 COSEWIC Status Report
on the
Grey Whale
Eschrichtius robustus
Atlantic population
in Canada

**EXTINCT
2022**

COSEWIC
Committee on the Status
of Endangered Wildlife
in Canada



COSEPAC
Comité sur la situation
des espèces en péril
au Canada

*Addendum to the 2009 COSEWIC Status Report on the Grey Whale *Eschrichtius robustus*, Atlantic population.

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Production note:

COSEWIC would like to acknowledge Brenna A. Frasier for writing the Addendum on Grey Whale, *Eschrichtius robustus*, Atlantic population in Canada, prepared under contract with Environment and Climate Change Canada. This addendum was overseen and edited by Hal Whitehead, Co-chair of the COSEWIC Marine Mammal Specialist Subcommittee.

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Également disponible en français sous le titre Addenda au Rapport de situation du COSEPAC de 2009 sur la Baleine grise (*Eschrichtius robustus*), population de l'Atlantique, au Canada.

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COSEWIC Assessment Summary

Assessment Summary – May 2022

Common name

Grey Whale - Atlantic population

Scientific Name

Eschrichtius robustus

Status

Extinct

Reason for designation

This baleen whale once occurred in the North Atlantic Ocean but disappeared before the end of the 1700s, presumably as a result of whaling activities. Little is known about this whale's historical abundance, biology, distribution, and habitat use in the North Atlantic. Although the situation for this whale has not changed since earlier assessments, COSEWIC now recognizes that a designatable unit which no longer exists either inside or outside Canada should be considered Extinct rather than Extirpated.

Occurrence

Atlantic Ocean

Status history

Extirpated before the end of the 1700s. Designated Extirpated in April 1987. Status re-examined and confirmed in May 2000 and November 2009. Status re-examined and designated Extinct in May 2022.



Eschrichtius robustus

Grey Whale (Atlantic Population)

Baleine grise (Population de l'Atlantique)

Range of occurrence in Canada (province/territory/ocean): Atlantic Ocean

Status History

Extirpated before the end of the 1700s. Designated Extirpated in April 1987. Status re-examined and confirmed in May 2000 and November 2009. Status re-examined and designated Extinct in May 2022.

Explanation:

No new information has become available since the last assessment that would lead to a change in the eligibility or taxonomic status of the Atlantic Grey Whale population.

Alter *et al.* (2015) genetically assessed a subset of known sub-fossil specimens and concluded that 1) Pacific and Atlantic Grey Whale mtDNA lineages are polyphyletic and represent a single species; 2) some lineages of Atlantic Grey Whales were highly divergent from Pacific Grey Whales; 3) several migration events occurred between the Pacific and Atlantic Oceans in the Pleistocene and Late Holocene; and 4) the Atlantic specimens presented lower levels of genetic diversity and a detectable decline in diversity that predated commercial whaling, originating in the mid-Holocene. These new specimens will be useful in future studies addressing questions of historical demographics, taxonomy, and population structure of the Atlantic Grey Whale. This analysis confirms that the historical populations of Grey Whales in the Atlantic and Pacific were distinct. As the populations were in different oceans and Grey Whales within the North Pacific are currently considered to form three distinct and evolutionarily significant designatable units based upon cultural and genetic differences (COSEWIC 2017), it is parsimonious to assume that the Atlantic and Pacific populations, using very different habitats, also showed evolutionarily significant differences.

Evidence (indicate as applicable):

The Atlantic Grey Whale (*Eschrichtius robustus*) had been considered extirpated from the North Atlantic since before the end of the 1700s. There has been no information to indicate that there will be any recovery and therefore it is recommended that the status be changed to extinct (under current COSEWIC procedures "Extirpated" is not appropriate when the entire DU has disappeared; and an Addendum is the appropriate mechanism for making such a change). There is not enough information available to warrant a fully updated status report.

SAS 6

Wildlife species:

Change in eligibility, taxonomy or designatable units:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
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Range:

SAS 7	Change in Extent of Occurrence (EOO):	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
SAS 8	Change in Index of Area of Occupancy (IAO) :	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>

SAS 9	Change in number of known or inferred current locations ¹ :	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
SAS 10	Significant new survey information	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>

Explanation:

Although the current EOO and IAO remain unchanged, neither applicable to an extinct population, knowledge of the historical values of these measures has changed.

Our understanding of the range of the extinct Atlantic Grey Whale has changed. Knowledge on the range of the extinct Grey Whale is based primarily on sub-fossil specimens and historical records from the 16th and 17th centuries. The Atlantic Grey Whale was previously known to be present along the east coast of North America, in the Baltic and North Seas, around Iceland and in the English Channel. Grey whales likely occurred in Canadian coastal waters including the Scotian Shelf, the Gulf of St. Lawrence, the Grand Banks and possibly Hudson Bay.

Since the last COSEWIC status report (COSEWIC 2000) and status appraisal summary (COSEWIC 2009), significant fossil and sub-fossil findings from both sides of the North Atlantic have been identified, tripling the previously known specimen count from ~21 to 62 (Alter *et al.* 2015; Garrison *et al.* 2019; Noakes *et al.* 2013; Rodrigues *et al.* 2018). These specimens confirm that the historical distribution of the species in the Eastern North Atlantic was (at least) as far south as and into the Mediterranean Sea (Macé 2003; Alter *et al.* 2015; Rodrigues *et al.* 2018).

Population Information:

SAS 11	Change in number of mature individuals:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
SAS 12	Change in population trend:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
SAS 13	Change in severity of population fragmentation:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
SAS 14	Change in trend in area and/or quality of habitat:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
SAS 15	Significant new survey information	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>

Explanation:

The North Atlantic Grey Whale was extirpated from the North Atlantic Ocean before the end of the 1700s, presumably as a result of whaling activities (Mead and Mitchell 1984; Lindquist 2000; Note: although the previous SAS cited extirpation as before the end of the 1800s, the literature suggests that extirpation occurred earlier). Not much is known about historical Grey Whale abundance, biology, distribution, and habitat use in the North Atlantic.

SAS 16

Threats:

Change in nature and/or severity of threats:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
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Explanation:

There has been no change in threats to the extirpated Atlantic Grey Whale since the last assessment.

SAS 17

Protection:

Change in effective protection:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
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Explanation:

There has been no change in protection for the extirpated Atlantic Grey Whale since the last assessment.

¹ Use the IUCN definition of location

SAS 18**Rescue Effect:**

Change in evidence of rescue effect:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
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SAS 19**Quantitative Analysis:**

Change in estimated probability of extirpation:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
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Explanation:

Opportunistic sightings of two different individuals occurred in 2010, off the Mediterranean coasts of Israel and Spain (Scheinin *et al.* 2011) and 2013, off the coast of Namibia (Elwen and Gridley 2013). [An additional Mediterranean sighting in 2021 has yet to be described in the scientific literature.] Prior to these sightings, there were no records of Grey Whale observations in the Atlantic region since before the end of the 1700s. The most plausible scenario is that the recent sightings are not Atlantic Grey Whales but are migrants from the Pacific region, and indeed the Namibian whale was genetically confirmed to be of Pacific origin (Hoelzel *et al.* 2021). The identification of a long-term history of transoceanic dispersal, paired with recent sightings in the North Atlantic in 2010, 2013 and 2021 highlights the potential for increased dispersal events with current and impending climatic changes.

Although there is evidence that there may be an increased frequency of migrants from the Pacific Grey Whale population(s) into North Atlantic waters, the individuals observed in 2010 and 2013 were single animals, characterized to be in poor condition. This suggests that they were not thriving. Further there have been no long-term observations (>1 month) of these apparent migrants in Atlantic waters. Finally, because Grey Whales in the Pacific are separate designatable units from the Atlantic, and one designatable unit cannot rescue another, there is no potential for a rescue effect even though there is a possibility that Pacific Grey Whales may re-inhabit the North Atlantic. Thus, these data suggest that recent sightings cannot be considered to be a 'rescue effect'.

Details:

No quantitative analysis available.

Summary and Additional Considerations:

The Atlantic Grey Whale is extinct from the North Atlantic. There is no information to indicate that its status has changed since the last assessment. There is not enough information available to warrant a fully updated status report.

ACKNOWLEDGEMENTS**Authorities Contacted**

The following individuals were contacted as part of the preparation of this summary: Aviad Scheinin (University of Haifa), Simon Elwen (Stellenbosch University), Randall Reeves (Okapi Wildlife Associates) and Rus Hoelzel (Durham University).

INFORMATION SOURCES

Alter, S.E., M. Meyer, K. Post, P. Czechowski, P. Gravlund, C. Gaines, H.C. Rosenbaum, K. Kaschner, S.T. Turvey, J. Van Der Plicht, B. Shapiro, and M. Hofreiter. 2015. Climate impacts on transocean dispersal and habitat in gray whales from the Pleistocene to 2100. *Mol. Ecol.* 24:1510–22.

- COSEWIC 2000. COSEWIC assessment and status report on the grey whale *Eschrichtius robustus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. v + 35 pp.
- COSEWIC 2017. COSEWIC assessment and status report on Grey Whale *Eschrichtius robustus* in Canada: Northern Pacific Migratory Population, Pacific Coast Feeding Group Population, Western Pacific Population. Committee on the Status of Endangered Wildlife in Canada. Ottawa.
- Elwen, S.H., and T. Gridley. 2013. Gray whale (*Eschrichtius robustus*) sighting in Namibia (SE Atlantic) – first record for Southern Hemisphere. SC/65a/BRG30:6. International Whaling Commission document. 5 p.
- Garrison, E.G., G.S. Morgan, K. McGrath, C. Speller, and A. Cherkinsky. 2019. Recent dating of extinct Atlantic gray whale fossils, (*Eschrichtius robustus*), Georgia Bight and Florida, western Atlantic Ocean. PeerJ 7:e6381.
- Hoelzel, A.R., F. Sarigol, T. Gridley, and S.H. Elwen. 2021. Natal origin of Namibian grey whale implies new distance record for in-water migration. Biology Letters 17(6):20210136.
- Macé M. 2003. Did the gray whale, *Eschrichtius robustus*, calve in the Mediterranean? Lattara 16:153–164.
- Mead, J.G., and E.D. Mitchell. 1984. Atlantic gray whales. p. 33–53, in M.L. Jones, S.L. Swartz, and S. Leatherwood (ed.) The Gray Whale *Eschrichtius robustus*. Academic Press, Toronto.
- Noakes, S.E., N.D. Pyenson, and G. McFall. 2013. Late Pleistocene gray whales (*Eschrichtius robustus*) offshore Georgia, U.S.A., and the antiquity of gray whale migration in the North Atlantic Ocean. Palaeogeogr. Palaeoclimatol. Palaeoecol. 392: 502–9.
- Rodrigues, A.S.L., A. Charpentier, D. Bernal-Casasola, A. Gardeisen, C. Nores, J.A. Pis Millán, K. McGrath, and C.F. Speller. 2018. Forgotten Mediterranean calving grounds of grey and North Atlantic right whales: evidence from Roman archaeological records. Proc. R. Soc. B 285:20180961.
- Scheinin, A.P., D. Kerem, C.D. MacLeod, M. Gazo, C.A. Chicote, and M. Castellote. 2011. Gray whale (*Eschrichtius robustus*) in the Mediterranean Sea: anomalous event or early sign of climate-driven distribution change? Mar. Biodivers. Rec. 4(e28):1-5.

WRITER OF ADDENDUM

Brenna A. Frasier

TECHNICAL SUMMARY

Eschrichtius robustus

Grey Whale (Atlantic Population)

Baleine grise (Population de l'Atlantique)

Range of occurrence in Canada (province/territory/ocean): Atlantic Ocean

Demographic Information

Generation time (usually average age of parents in the population; indicate if another method of estimating generation time indicated in the IUCN guidelines (2011) is being used).	Not applicable
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	Not applicable
Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations, whichever is longer up to a maximum of 100 years]	Not applicable
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations, whichever is longer up to a maximum of 100 years].	Not applicable
[Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations, whichever is longer up to a maximum of 100 years].	Not applicable
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any period [10 years, or 3 generations, whichever is longer up to a maximum of 100 years], including both the past and the future.	Not applicable
Are the causes of the decline a. clearly reversible and b. understood and c. ceased?	a. Not applicable b. Not applicable c. Not applicable
Are there extreme fluctuations in number of mature individuals?	Not applicable

Extent and Occupancy Information

Estimated extent of occurrence (EOO)	Not applicable
Index of area of occupancy (IAO) (Always report 2x2 grid value).	Not applicable
Is the population severely fragmented i.e., is >50% of its total area of occupancy in habitat patches that are (a) smaller than would be required to support a viable population, and (b) separated from other habitat patches by a distance larger than the species can be expected to disperse?	a. Not applicable b. Not applicable

Number of locations* (use plausible range to reflect uncertainty if appropriate)	Not applicable
Is there an [observed, inferred, or projected] decline in extent of occurrence?	Not applicable
Is there an [observed, inferred, or projected] decline in index of area of occupancy?	Not applicable
Is there an [observed, inferred, or projected] decline in number of subpopulations?	Not applicable
Is there an [observed, inferred, or projected] decline in number of locations*?	Not applicable
Is there an [observed, inferred, or projected] decline in [area, extent and/or quality] of habitat?	Unknown
Are there extreme fluctuations in number of subpopulations?	Not applicable
Are there extreme fluctuations in number of locations*?	Not applicable
Are there extreme fluctuations in extent of occurrence?	Not applicable
Are there extreme fluctuations in index of area of occupancy?	Not applicable

Number of Mature Individuals (in each subpopulation)

Subpopulations (give plausible ranges)	Not applicable
N Mature Individuals	Not applicable
Total	Not applicable

Quantitative Analysis

Is the probability of extinction in the wild at least [20% within 20 years or 5 generations whichever is longer up to a maximum of 100 years, or 10% within 100 years]?	Not applicable. Already extirpated.
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Threats (direct, from highest impact to least, as per IUCN Threats Calculator)

Was a threats calculator completed for this species? NO What additional limiting factors are relevant? Not applicable
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Rescue Effect (immigration from outside Canada)

Status of outside population(s) most likely to provide immigrants to Canada.	No members of DU alive anywhere
Is immigration known or possible?	No
Would immigrants be adapted to survive in Canada?	Not applicable
Is there sufficient habitat for immigrants in Canada?	Unknown

* See Definitions and Abbreviations on [COSEWIC website](#) and [IUCN](#) for more information on this term.

Are conditions deteriorating in Canada?+	Unknown
Are conditions for the source (i.e., outside) population deteriorating?+	Not applicable
Is the Canadian population considered to be a sink?+	Not applicable
Is rescue from outside populations likely?	No

Data Sensitive Species

Is this a data sensitive species?	No
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Status History

COSEWIC: Extirpated before the end of the 1700s. Designated Extirpated in April 1987. Status re-examined and confirmed in May 2000 and November 2009. Status re-examined and designated Extinct in May 2022.

Status and Reasons for Designation:

Current Status: Extinct	Alpha-numeric codes: Not applicable
Reason for Designation: This baleen whale once occurred in the North Atlantic Ocean but disappeared before the end of the 1700s, presumably as a result of whaling activities. Little is known about this whale's historical abundance, biology, distribution, and habitat use in the North Atlantic. Although the situation for this whale has not changed since earlier assessments, COSEWIC now recognizes that a designatable unit which no longer exists either inside or outside Canada should be considered Extinct rather than Extirpated.	

Applicability of Criteria

Criterion A (Decline in Total Number of Mature Individuals): Not applicable.
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 Population): Not applicable.
Criterion E (Quantitative Analysis): Not applicable.

+ See [Table 3](#) (Guidelines for modifying status assessment based on rescue effect).



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 (2022)

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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