

# Global Review of the Conservation Status of Monodontid Stocks

## Glossary of Terms, Acronyms, and Abbreviations

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### Aggregations

Groups of individuals of a species in summering, wintering, or migrating areas. The modifier “recurring” or “seasonal” is used when aggregations are known to repeat annually or otherwise regularly.

### AI

Admiralty Inlet; body of water in Nunavut, Canada; in this issue, a narwhal stock that aggregates in Admiralty Inlet in summer (August).

### Availability Bias

When animals are missed by a survey due to being submerged or otherwise unavailable for detection; availability bias can be estimated with data on dive times, surfacing intervals, and location, and a correction factor can be applied to the survey results to remove the bias.

### CAFF

Conservation of Arctic Flora and Fauna; a working group of the Arctic Council.

### COSEWIC [Canada]

Committee on the Status of Endangered Wildlife in Canada; an independent advisory panel to the Minister of Environment and Climate Change Canada, established under the Species At Risk Act of 2002. The committee meets twice a year to assess the risk of extinction of wildlife species; status categories include Extinct, Extirpated, Endangered, Threatened, Special Concern, Data Deficient, Not at Risk (<https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html>).

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### Critical Habitat (ESA [USA])

ESA designation of specific areas either 1) within the geographical area occupied by the species at the time of ESA listing, if they contain physical or biological features essential to conservation, and the features may require special management considerations or protection or 2) outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.<sup>1</sup>

### Critical Habitat (SARA [Canada])

SARA designation of habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in a recovery strategy or in an action plan for the species.<sup>2</sup>

### Critically Endangered (IUCN)

Red List designation of a species, subspecies, or “subpopulation” (as defined in the Guidelines) that is facing an extremely high risk of extinction in the wild.<sup>3</sup>

### CS

Cumberland Sound; body of water in Nunavut, Canada; in this issue, a beluga stock residing therein.

### Data Deficient (Norwegian Red List)

Red List designation of a species or population that is at risk of extinction,

<sup>1</sup>Critical Habitat What is it? U.S. Fish and Wildlife Service, Dep. Interior. ([https://www.fws.gov/endangered/esa-library/pdf/critical\\_habitat.pdf](https://www.fws.gov/endangered/esa-library/pdf/critical_habitat.pdf)).

<sup>2</sup>A guide to the Species At Risk Act (SARA): Information for federal land managers (<https://www.registrelep-sararegistry.gc.ca/6AC53F6B-550E-473D-9BDB-1CCBF661F521/fedland-eng.pdf>).

<sup>3</sup>IUCN Red List Categories and Criteria (<https://www.iucnredlist.org/resources/categories-and-criteria>).

but for which there is considerable uncertainty about the degree of risk.<sup>4</sup>

### Data Deficient (IUCN)

Designation of a species for which the data available are insufficient for placing it in one of the risk categories (e.g., Endangered, Vulnerable).<sup>3</sup>

### Depleted (MMPA [USA])

Any species or “population stock” (a term used in the MMPA) that is below its optimum sustainable population size or is listed as an endangered or threatened species under the ESA.<sup>5</sup>

### Depleted (general definition)

A population that is below its maximum sustainable yield (MSY) level.

### DFO [Canada]

Fisheries and Oceans Canada (formerly Department of Fisheries and Oceans).

### Distinct Population Segment (DPS) (ESA [USA])

A vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. The ESA provides for listing species, subspecies, or distinct population segments of vertebrate species.<sup>6</sup>

<sup>4</sup>How the Red List is compiled ([https://www.biodiversity.no/Pages/135393/How\\_the\\_Red\\_List\\_is](https://www.biodiversity.no/Pages/135393/How_the_Red_List_is)).

<sup>5</sup>Lowry, L., D. W. Laist, E. Taylor. 2007. Endangered, Threatened, and Depleted Marine Mammals in U. S. Waters: A review of species classification systems and listed species (avail. at <https://www.mmc.gov/wp-content/uploads/et-dmarinemammals.pdf>).

<sup>6</sup>Endangered Species Act Section 3. U.S. Fish and Wildlife Service, Dep. Interior (avail. at <https://www.fws.gov/endangered/laws-policies/section-3.html>).

**EBI**

Eastern Baffin Island; in this issue, a narwhal stock that summers along the east coast of Baffin Island.

**EBS**

Eastern Beaufort Sea; in this issue, a beluga stock that summers in the eastern Beaufort Sea.

**EHB**

Eastern Hudson Bay; in this issue, a beluga stock that summers in eastern Hudson Bay.

**Endangered (COSEWIC) [Canada]**

COSEWIC designation of a wildlife species (encompassing subspecies and “designatable units”—a term specific to SARA) that is facing imminent extirpation or extinction.<sup>7</sup>

**Endangered (ESA [USA])**

ESA designation of a species, subspecies, or distinct population segment that is in danger of extinction throughout all or a significant portion of its range.<sup>6</sup>

**Endangered (IUCN)**

Red List designation of a species, subspecies, or “subpopulation” (as defined in the Guidelines) that is facing a high risk of extinction in the near future.<sup>3</sup>

**ES**

Eclipse Sound; body of water in Nunavut, Canada; in this issue, a narwhal stock that aggregates in Eclipse Sound in summer.

**ESA - Endangered Species Act [USA]**

U.S. law enacted in 1973 to conserve and protect endangered and threatened species and their habitat; status listings include Endangered, Threatened, Candidate (species being considered for listing). Habitat essential for the spe-

cies is legally designated as “Critical Habitat.”<sup>6</sup>

**GROM**

Global Review of Monodontids.

**IB**

Inglefield Bredning; a body of water in West Greenland; in this issue, a narwhal stock that aggregates in Inglefield Bredning in summer.

**IWC**

International Whaling Commission; international body established under the 1946 International Convention for the Regulation of Whaling to “provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry”. In recent years it has become increasingly involved in assessment of small cetaceans and in cetacean conservation issues not directly related to whaling.<sup>8</sup>

**IUCN**

International Union for Conservation of Nature; international organization in the field of conservation of natural resources; holds observer and consultative status in the United Nations; plays a role in the implementation of several international conventions on nature conservation and biodiversity; manages the Red List of Threatened Species.<sup>9</sup>

**IUCN Red List**

A system of assessing the global conservation status of species, subspecies, and “subpopulations” (as defined in the Guidelines); categories include Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened, Least Concern.<sup>10</sup>

**JB**

James Bay; body of water in Southern Hudson Bay, Canada; in this issue,

a beluga stock with its distribution centered in James Bay.

**JCNB**

Canada/Greenland Joint Commission on the Conservation and Management of Narwhal and Beluga.<sup>11</sup>

**LRC [Canada]**

Loss Rate Correction; a correction factor applied to landings to account for struck-but-lost animals (shot, harpooned, etc., but not secured and counted in catch statistics) in estimating removals from the population.

**MB**

Melville Bay; a body of water in West Greenland; in this issue, a narwhal stock that aggregates in Melville Bay in summer.

**Monodontids**

Cetaceans in the family Monodontidae, comprising two extant species—the beluga and the narwhal.

**MMPA - Marine Mammal Protection Act [USA]**

U.S. law enacted in 1972 to protect all marine mammals; among other things, it prohibits the “taking” (see “Takes (MMPA [USA])”) of marine mammals, and establishes a moratorium on the importation, exportation, and sale of any marine mammal, or any marine mammal part or product.<sup>12</sup>

**MSYL**

Maximum Sustainable Yield Level; “the greatest harvest that can be taken from a self-regenerating stock of animals year after year while still maintaining a constant average size of the stock” (Holt and Talbot, 1978:Appendix 3).

**mtDNA**

mitochondrial genetics (DNA = deoxyribonucleic acid).

<sup>7</sup>COSEWIC definitions and abbreviations: Approved by Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in November 2017 (<https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife/definitions-abbreviations.html>).

<sup>8</sup>The International Whaling Commission (IWC) (<https://iwc.int/home>).

<sup>9</sup>International Union for Conservation of Nature (IUCN) (<https://www.iucn.org/>).

<sup>10</sup>IUCN. Red List of Threatened Species (<https://www.iucn.org/resources/conservation-tools/iucn-red-list-threatened-species>).

<sup>11</sup>JCNB (<https://www.nwmb.com/en/2-uncategorised/83-canada-greenland-joint-commission-on-beluga-and-narwhal>).

<sup>12</sup>MMPA (<https://www.fws.gov/international/laws-treaties-agreements/us-conservation-laws/marine-mammal-protection-act.html>).

## **NAMMCO**

North Atlantic Marine Mammal Commission; regional body for cooperation on conservation, management, and study of cetaceans (whales, dolphins and porpoises) and pinnipeds (seals and walruses) in the North Atlantic Ocean<sup>13</sup>.

## **Near Threatened (IUCN)**

Red List designation of a species, subspecies, or “subpopulation” (as defined in the Guidelines) that has been evaluated against the Red List criteria but does not qualify for Critically Endangered, Endangered, or Vulnerable, but is close to qualifying for Vulnerable or is likely to qualify for Vulnerable in the near future.<sup>3</sup>

## **NHB**

Northern Hudson Bay; in this issue, a narwhal stock that summers in Hudson Bay.

## **NOW**

North Water Polynya called Pikiialasorsuaq in Greenlandic; polynya (area of open water surrounded by sea ice) that remains open year-round between Greenland and Canada in northern Baffin Bay and extending into Smith Sound and Lancaster Sound.

## **Norwegian Red List**

List of species considered to be at risk of going extinct in Norway. Species are generally included on the Red List because they are rare or because the number of individuals is in strong decline. Habitat fragmentation and loss also increase the risk of extinction; categories are: Regionally Extinct (RE), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Data Deficient (DD).<sup>14</sup>

## **NSR**

Northern Sea Route; shipping route within the Russian EEZ, defined by Russian legislation that extends from Novaya Zemlya and along the main-

land coast from the Kara Sea, Laptev Sea, and East Siberian Sea to the Bering Strait.

## **NWP**

Northwest Passage; sea route between the Pacific and Atlantic Oceans following the coast of northern Alaska from the Bering Strait and through the Canadian Arctic Archipelago to Baffin Bay.

## **PBR**

Potential Biological Removal; risk-averse method of assessing a stock with limited information (a recent estimate of abundance and an estimate of removals: Wade, 1998); sets a threshold number of removals below which there is little concern; provides guidance for managing removals to assure sustainability and if necessary, recovery of the stock to some desired level which under U.S. law is the “optimum sustainable population”. The PBR value is not an estimate of the maximum number of individuals that can be taken sustainably each year, but rather it is seen as a safe limit—i.e., as long as removals are below the PBR, there is a high probability that the stock will recover to or remain within its optimum sustainable population size.

## **PBDE's**

Polybrominated diphenyl ethers; chemicals that are used as flame retardants; because of their toxicity and persistence, the industrial production of some PBDE's is restricted under the Stockholm Convention, a treaty to control and phase out major persistent organic pollutants.

## **PCB's**

Polychlorinated biphenyls; organic chlorine compounds that were widely used in electrical equipment and other applications; and are now banned by international convention (See PBDE's) but remain as persistent pollutants in many aquatic ecosystems.

## **Red Book of Chukotka [Russia]**

Official state document that lists rare and endangered species (and sub-

species) of animals, plants, and fungi in the terrestrial and marine environments within the Chukotka Autonomous Okrug, Russian Federation.<sup>15</sup>

## **Removals**

Individuals removed from a population due to human activities including hunting, bycatch (incidental mortality) in fisheries, live-capture for display or research, vessel strikes, etc.

## **Risk Assessment Modeling**

Estimates levels of risk to a population from different levels of removals; as applied to monodontid stocks in Greenland and some stocks in Canada (c.f., Witting et al., 2019), a series of abundance estimates and history of removals are used in a Bayesian framework to estimate the depletion level and the probability that the population will not decline at various levels of removal over 5 years; this information is provided to managers who can then consider risk tolerance and recovery goals in setting allowable take levels.

## **Risk Tolerance**

In conservation, a judgment reflected in policy that indicates the degree of willingness to accept risk when making conservation decisions. For example, acceptance of a 70% probability that allowable removal levels will not cause the population to decline may be characterized as a moderate degree of risk tolerance (c.f. Witting et al., 2019).

## **SARA - Species At Risk Act [Canada]**

Federal law passed in 2002 which came into full effect in 2004, with three main goals, to 1) prevent endan-

<sup>13</sup>NAMMCO (<https://nammco.no/>).

<sup>14</sup>Norwegian Red List for Species ([https://www.biodiversity.no/Pages/135380/Norwegian\\_Red\\_List\\_for\\_Species](https://www.biodiversity.no/Pages/135380/Norwegian_Red_List_for_Species)).

<sup>15</sup>Andreev, A.V., D. I. Berman, P. Yu Gorbunov, N. E. Dokuchaev, V. S. Kononenko, B. A. Korotyaev, A. A. Kochnev, A. V. Krechmar, D. I. Litovka, Yu. M. Marusik, L. A. Prozorova, I. A. Chereshev, F. B. Chernyavsky, and O. A. Khruleva. 2008. The Red Book (Endangered Species List) of the Chukotka Autonomous Okrug // Chukotka Dep. of Ind. & Agricult.;RAS Far Eastern Branch, Northeastern Scientific Center, Institute of Biological Problems of the North. Magadan. - Vol. 1 Animals, p. 235 (avail. at [https://www.ipae.uran.ru/sites/default/files/publications/ipae/0876\\_2008\\_RedBook\\_ChukotAO\\_T1.pdf](https://www.ipae.uran.ru/sites/default/files/publications/ipae/0876_2008_RedBook_ChukotAO_T1.pdf)).

gered or threatened species from becoming extinct or extirpated, 2) help in the recovery of endangered, threatened and extirpated species, and 3) manage human activities to prevent species from becoming endangered or threatened; designations include Extirpated, Endangered, Threatened, Special Concern, and Not At Risk.<sup>2</sup>

#### **SLE**

St. Lawrence Estuary; in this issue, a beluga stock residing therein.

#### **SI**

Somerset Island; in this issue, a narwhal stock that aggregates near Somerset Island in summer.

#### **Stock**

A subunit of a biological population that is suitable for management; should be designated and managed in such a way that the population and/or species as a whole persists throughout its range; often comprises a breeding population that occupies the same regions annually.

#### **Strategic (as Defined by MMPA [USA])**

Designation of a marine mammal stock 1) for which the level of direct human-caused mortality exceeds the potential biological removal (PBR, see above) level; 2) that based on the best scientific information available, is de-

clining and is likely to be listed as a threatened species under the ESA in the foreseeable future; or 3) that is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA.<sup>12</sup>

#### **Struck-But-Lost (or Struck-And-Lost)**

Term for instances when an animal being hunted is struck by the weapon (e.g., harpoon, rifle) but is not recovered or secured and therefore is not counted as caught or landed; also referred to as hunting loss.

#### **Sustainable Removals**

Levels of removals by hunting (or other human actions) that do not cause the stock abundance to decline.

#### **TALC**

Total Allowable Landed Catch; allowed catch level, the total allowable removals minus the estimated number of struck-but-lost.

#### **TAT**

Total Allowable Take; landed (secured) catch plus the known or estimated struck-but-lost.

#### **Take (or Taking) (MMPA [USA])**

Defined in the MMPA as “the act of hunting, killing, capture, and/or harassment of any marine mammal; or, the attempt at such.”<sup>12</sup>

#### **Takes (General)**

Animals removed from a population by hunting (or other means).

#### **Threatened (COSEWIC [Canada])**

COSEWIC designation of a wildlife species (encompassing subspecies and “designatable units” – a term specific to SARA) that is likely to be assessed as Endangered if not enough is done to reverse the factors leading to its listing as Threatened.<sup>7</sup>

#### **Threatened (ESA [USA])**

ESA designation of a species, subspecies, or DPS that is likely to be listed as Endangered in the foreseeable future throughout all or a significant portion of its range.<sup>6</sup>

#### **WHB**

Western Hudson Bay; in this issue, a beluga stock that summers in western Hudson Bay.

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