

# Annex E

## Report of the Aboriginal Subsistence Whaling Subcommittee

**Participants:** Walløe and Nelson (Convenors), Allison, Angliss, Arakaki, Babey, Banga, Bell, Bernus, Bessega, Bickham, Brownell, Butterworth, Cassani, Cholewiak, Cisternino, Citta, Collier, de Moor, DeMaster, Doniol-Valcroze, Donovan, Double, Evangelista, Ferguson, Fisher, Fyfe, Gallego, Germishuizen, Givens, Groes, Hielscher, Hikari, Holm, Huánuco, Hunter, Iida, Isoda, Jimenez, Juscamayta, Katara, Kelly, Kema, M.-A. Kim, Y. Kim, Lang, Leal, Litovka, Lundquist, Lysenko, Maldonado, Mallette, Matsuoka, Mbengue, Naylor, Nelson, O’Loughlin, Pampoulie, Pinder, Pita, Porter, Punt, R. Reeves, S. Reeves, Robson, Sackett, Sagalés, Schubert, Scordino, Seakamela, Sigurðsson, Simmonds, Skaug, Stachowitsch, Staniland, Stimmelmayer, Suydam, Svoboda, Thomas, Tiedemann, Urrego, Wade, Walløe, Wang, Warrie, Webster, Weller, Wilberg, Witting, Wulff and Zerbini.

### 1. OPENING REMARKS

The 2024 meeting of the Subcommittee on Aboriginal Subsistence Whaling (ASW) was held on April 22-27, 2024. The Convenor (Walløe) and Co-Convenor (Nelson) worked with the Secretariat to plan the Subcommittee meeting. The Convenor introduced himself and welcomed all Subcommittee members to the 2024 ASW meeting. He also invited the Co-Convenor Nelson to introduce himself.

### 2. ELECTION OF CHAIRS

Walløe and Nelson were willing and elected to serve as Chair and Co-Chair for the Subcommittee meeting.

### 3. APPOINTMENT OF RAPORTEURS

Walløe proposed that the Chair and Co-Chair serve as rapporteurs; later, John Citta was appointed as an additional rapporteur.

### 4. AVAILABLE DOCUMENTS

The following documents were discussed at the meeting: SC/69B/O/08; SC/69B/ASW/01; 02Rev1; 04; 05; SC/69B/E/01; 13; SC/69B/ForInfo/28.

### 5. DISCUSSION OF STOCKS SUBJECT TO ASW

#### 5.1 New information and progress on recommendations

In 2018, the Commission adopted new catch and strike limits for aboriginal subsistence whaling as well as scientific aspects of an Aboriginal Whaling Scheme. The new Schedule does not require the Scientific Committee to undertake an annual review of management advice for ASW hunts. *Implementation Reviews* are undertaken regularly, normally around every six years, to ensure that the approved *Strike Limit Algorithms (SLAs)* remain the appropriate ways to provide management advice on hunts. If new information becomes available to suggest that the status of the stock is not as expected (i.e., outside of tested parameter space - see Annex E (IWC, 2019e), a *Special Implementation Review* can occur.

#### 5.1.1 Eastern Canada/West Greenland bowhead whales

Catches for the aboriginal hunt of Eastern Canada/West Greenland (ECWG bowhead whales, *Balaena mysticetus*) were presented in SC/69B/O/08. No ECWG bowhead whales were struck in Greenland in 2023. Catches have not been reported by Canada for 2023; however, the Secretariat noted that the data are in preparation by the Department of Fisheries and Oceans Canada and expected soon.

#### 5.1.2 Bering-Chukchi-Beaufort Seas bowhead whales

Temporal trends in body condition indices (BCI) of Bering-Chukchi-Beaufort (BCB) bowhead whales were presented in SC/69B/ASW/01. Body condition indices were based on the measured girth and length of harvested bowhead whales from the Bering-Chukchi-Beaufort population during 1989-2023. BCI based on girth (BCI<sub>g</sub>;  $n=382$ ; 1989-2023) and volume (BCI<sub>v</sub>;  $n=309$ ; 1995-2023) were calculated as residuals from large linear regression models that controlled for

confounding effects of *length, age class, season, sex*, and their interactions. Trends in BCIg and BCIv were examined for all whales pooled, and also for each age class separately, using generalized additive models (GAMs). BCIg and BCIv were correlated ( $r=0.84$ ) and yielded the same inferences. The most prominent effect occurred in the late 1990s, when body condition temporarily improved, and then returned to a roughly stable long-term average. For analyses stratified by age class, there was no significant evidence of long-term trends in body condition, except for a (downward) linear trend for the postweaning age class. However, it is debatable whether a linear regression fit to the entire time series can be straightforwardly interpreted since the overall significance may be due only to the prominent event in the late 1990s. To test for recent trends, linear regressions were fit to data collected since 2010; no significant declines for any age class were found. Analyses suggested body condition indices for BCB bowheads are generally stable but may have recently declined for postweaning whales. Continued monitoring is key for understanding how BCB bowhead whales may be responding to a changing environment. Given that abundance has approximately doubled during the study period and that there have been large environmental changes, the relative stability of body condition indices is encouraging.

During discussion, it was asked what level of change (effect size) is considered biologically significant and whether the significance tests for the GAMs had sufficient statistical power to detect that level of change. The authors responded that it was unknown what amount of decline in body condition would be considered biologically significant, but that the estimated effects were rather small (0.02 standard units per decade). No quantitative power analyses had been completed, but the authors noted that one of the most common reasons for low power in this type of analysis is known to be uncertainty in the determination of smoothness. In the present analysis, such uncertainty was evaluated and found to be negligible. Many of the GAMs considered were linear, where power is more easily evaluated. The Subcommittee also discussed whether body condition indices based on measurements of girth were reliable and noted that blubber thickness may not change as the lipid content of blubber declines. The authors responded that prior studies on gray whales have shown that most of the change in mass is due to the loss of interstitial fat and muscle mass. Furthermore, body condition indices based on girth have already been shown to be related to changes in sea ice and upwelling favorable winds which enhance feeding opportunities. However, they noted that data on the lipid content of blubber is being collected. The Subcommittee requested that additional information on the lipid content of blubber also be incorporated into future analyses of bowhead body condition.

Harvest data from the aboriginal hunt for bowhead whales in Alaska were presented in SC/69B/ASW/02 Rev1. In 2023, 55 bowhead whales were struck, resulting in 45 animals landed. The total number of whales struck and the total landed during the hunt in 2023 was slightly lower than the average over the past 10 years (2013-2022: mean struck = 58.5,  $SD = 10.9$  and mean landed = 46,  $SD = 8.41$ ; respectively). Efficiency (# landed / # struck) in 2023 was 82%, which was slightly higher than the average for the past 10 years (2013-2022: mean of efficiency = 79%;  $SD = 0.053$ ). Of the landed whales, 26 were females and 19 were males. Based on total length ( $\geq 13.5$  m in length), four of the females were presumed to be sexually mature. Fetuses were not noted by hunters in any of the four mature females, which were not examined by North Slope Borough Department of Wildlife staff. Based on a baleen length of 40 cm, one harvested whale was determined by biologists to be a calf (George and Suydam, 2014).

The 5<sup>th</sup> BCB bowhead health report (SC/69B/ASW/05) summarises general status and health information of bowhead whales during 2022 and 2023. No new information on population size or trend is available; the most recent estimates are both from 2019: 14,025 (CV=0.23) from an ice-based survey and 17,175 whales (CV = 0.24) from an aerial survey. Additional ice-based and aerial surveys are scheduled for 2025. Multiple lines of evidence (aerial surveys, satellite tagging and acoustics) suggest bowhead whales are shifting their winter range northward and expanding their summer ranges. Body condition of landed whales remains mostly stable over time but may be lower in post-weaning whales in recent years. Length at sexual maturity has declined; compared to 1976-1990, length at sexual maturity is now  $\sim 1.5$  m shorter. Pregnancy rate during 1973-2021 was 0.38 (95% CI = 0.20-0.51) with a 3-year calving interval, consistent with prior analyses. Disease conditions other than parasitic kidney worm infection, now endemic, remain rare in bowhead whales. The percentage of landed whales with scars from ship strikes in 2022 (6%) and 2023 (8.7%) exceed the prior baseline percentage (2%); a new trend analysis of scarring data is planned. Stranding data (0 in 2022 and 5 in 2023) indicate that killer whale predation remains the main detectable source of natural mortality (4 out of 5 strandings). In summary, bowhead whales are responding to rapid environmental change in the Arctic, but population indices and general health assessment findings reiterate that the general health of whales remains good and the harvest is sustainable. Continued harvest and health monitoring of the BCB bowhead whale population remains critical to aid in our general understanding of the complex pathways and mechanisms by which climate change is influencing migration timing and distribution, prey distribution, and indices of productivity and health.

The Subcommittee thanked the Alaska Eskimo Whaling Commission, the North Slope Borough, and the U.S. for providing this information, which is critical for assessing the status and health of the BCB bowhead population and provides important ancillary information on the sustainability of the harvest and the effects of climate change. The Subcommittee suggested that such status reports are not required for each meeting but are important prior to *Implementation Reviews*. The Subcommittee requested that these reports specifically consider how climate change

affects the health, distribution, and ecology of BCB bowheads, and that they incorporate updates on genetic analyses and stock structure.

Scientists from the Russian Federation reported in SC/69B/ASW/04 that one bowhead whale was harvested in Chukotka in 2023; the whale was a pregnant female, 17.5m long.

### 5.1.3 North Pacific gray whales

Harvest data from the aboriginal hunt of gray whales (*Eschrichtius robustus*) in the Russian Federation were presented in SC/69B/ASW/04. In 2023, sixteen communities were involved in whaling. During the 2023 season, 130 gray whales were struck and 129 gray whales were landed. These numbers include the landing of five 'stinky' gray whales, whales with unpleasant odor and taste (Polyakova *et al.*, 2023). The meat, mangtak, intestines and carcasses of the 'stinky' whales were annihilated. Sixty-three males and 67 females were identified. The indigenous hunters of the Lorino village took the majority of whales (42%). Mean body length of harvested whales was 10.1m with a mean body weight of 13.6 tons (in 2022 – 10.4m and 13.6 tons). The largest whale (female 14.6m and 32.8 tons) was harvested in Vankarem, Chukotka. The smallest whale (7.1 m and 5.1 tons) was female, taken near Neshkan, Chukotka, and was not accompanied by a large adult; there were no signs of milk in the stomach of this whale. None of the harvested females were lactating or had a fetus. Approximately 29 of the landed whales had injuries and traumas, most were consistent with killer whale attacks. Mean blubber thickness was 121mm. The availability of gray whales in Chukotka, their body condition, and the amount of food in their stomachs were considered typical. All whaling products were used for local subsistence purposes only. The Subcommittee thanks the authors for providing this information.

The Subcommittee noted that toxicology studies of gray whales were presented in SC/69B/E/13 and refers readers to the E Subcommittee for more information.

An update on the mortality event that occurred during 2019-2023 was presented in SC/69B/E/01. Unusual Mortality Events (UMEs) can be declared under the U.S. Marine Mammal Protection Act during mortality events; the UME involving eastern North Pacific gray whales occurred from 17 December 2018 through 09 November 2023. The Working Group on Marine Mammal Unusual Mortality Events voted to close the UME after reviewing data provided by the investigative team on stranding rates and findings from stranded animals. A total of 690 whales stranded during the UME, ranging from Alaska to Mexico along the West Coast of North America (316 in Mexico, 347 in the United States, and 27 in Canada). Most of the carcasses in U.S. waters were documented in the spring and early summer, during the northward migration, when gray whales were nearing the end of their seasonal fast. Of the 690 stranded whale reports, stranding team responses included partial examinations and sampling of 412 whales, and internal examinations of 72 whales. Protocols were developed to categorize nutritional condition in a standardized way across responders. Nutritional condition was evaluated in 189 whales, with 33.8% Emaciated/Poor, 35.9% Thin/Fair, 27.5% Average/Moderate, and 2.6% Fat/Good. Observations of live whales via photogrammetry and boat-based work during the UME documented animals in lower nutritional condition than during prior years. Disease and biotoxins were not detected, also suggesting that whales died of malnutrition. The Subcommittee noted this paper was also covered within the E Subcommittee.

Recent gray whale population modelling linked the 1999-2000 and 2019-2023 UMEs to a coupling of changes in sea ice cover and the biomass of infaunal (i.e., seafloor-living) crustaceans in localized feeding areas north and south of the Bering Strait (Stewart *et al.*, 2023). The model found that the two mortality events occurred during periods of simultaneous low infaunal prey biomass and high surface sea ice cover that could restrict access to these localized feeding areas. Combined, these factors (i.e., low infaunal prey biomass and restricted access) could lead to the poor nutritional condition, decreased calving rates, and increased mortality documented during the two UMEs. In summary, the 2019-2023 eastern North Pacific Gray Whale UME was associated with localized ecosystem changes in the whale's feeding areas north and south of the Bering Strait. These changes contributed to the poor nutritional condition observed in live whales in the wintering areas of Mexico and to the deaths of stranded gray whales in all three countries, resulting in decreased production of calves and an overall decrease in population abundance.

The Subcommittee noted that management advice will be provided by IST and mortality information will be considered during the *Implementation Review* for ENP gray whales scheduled to begin in 2025. During the *Implementation Review*, the frequency and magnitude of mortality events will likely be incorporated into the simulation envelope used to test the SLA for ENP gray whales. It was also noted that the designation of a UME by the United States triggered increased survey effort; abundance and the calf production were monitored annually in response to the mortality event.

There were also questions regarding how the UME was assigned a beginning date and the mechanism by which it was declared to be over. The UME was defined as beginning during the winter/northward migration of ENP gray whales in 2019, beginning with the first mortalities observed in the Mexican lagoons on December 17, 2018. The ending date of the UME was determined by the US National Marine Fisheries Service, which took advice from an expert panel that assessed all available information on the status of the population.

Finally, the authors were asked what the long-term average stranding rate was and if the current stranding rate within the United States and Mexico would likely surpass the long-term average in 2024. The authors responded that the 28-year long-term average (1990-2018, which includes the UME in 1999-2000) in the United States was 34.8 whales/year (SD=24), and the 18-year long-term average (2001-2018, which includes no UMEs) was 28.9 whales/year (SD=10.3) and has ranged from approximately 11 to 130 strandings per year. In 2023, a total of 44 ENP gray whales stranded in the U.S. Approximately 8 gray whales had stranded in the U.S. during 1 January – 24 April 2024; the authors asserted it was too early in the year to make conclusions but did not think it likely that strandings in 2024 would exceed the long-term average. The authors could not comment on 2024 stranding rates in Mexico.

Eguchi *et al.* (2023) (SC/69B/ForInfo 28) provided an update on Eastern North Pacific gray whale calf production. Shore-based counts of female gray whales accompanying their calves (i.e., mother-calf pairs) have been conducted annually from the Piedras Blancas Lighthouse Station in central California since 1994, except for 2020 due to COVID-19. From 27 March 2023 to 26 May 2023, 409 hours of survey were completed. Daily survey effort ranged from zero to 12 hours. A total of 80 mother-calf pairs were counted, with the highest daily count of 12 pairs on 21 April 2023 or 1 calf per hour of survey effort on that day. The estimated number of mother-calf pairs during the 2023 migration season was 412.4 (95%CI = 321 - 524). Total calf production of ENP gray whales has been notably low since 2019. In 2022, calf production was estimated at 216.7 (SE = 33.4, 95% CI = 159-290), representing the lowest estimate on record. While the 2023 estimate is nearly twice that number, it is markedly lower than the estimates in many other years of the time series, including those from 2011 through 2018.

During discussion, the authors noted they are interpreting the 2023 increase in calf production in addition to other available data on strandings and body condition as evidence that the mortality event was over. The Subcommittee noted that the number of mother-calf pairs presented in Eguchi *et al.* (2023) SC/69B/ForInfo/28 was the absolute number of mother-calf pairs and not the per capita number of mother calf-pairs. Because abundance declined during the mortality event, the absolute number of mother-calf pairs will be smaller, even if the calving rate recovers. The authors responded that they are considering per capita calving rates, even though the per capita rates are not shown in the paper. The Subcommittee noted that studies such as this are critical for conducting *Implementation Reviews* and encouraged the continued collection of this data.

The Subcommittee noted that ASI endorsed new abundance estimates for ENP gray whales and for the Pacific Coast Feeding Group (PCFG); see Annex D, Item 2.1.1.

#### *5.1.4 Common minke whale stocks off East Greenland*

In 2023, 18 minke whales were struck off East Greenland (five males, 13 females), from which all 18 were landed. Samples were collected from six whales.

#### *5.1.5 Common minke whale stocks off West Greenland*

In 2023, 164 minke whales were struck off West Greenland (33 males, 127 females, four unknown), from which 159 were landed and five lost. Samples were collected from 111 whales. The Subcommittee commended Greenland for collecting a large number of genetic samples.

#### *5.1.5 Fin whales off West Greenland*

In 2023, two fin whales were struck off West Greenland (one male and one female), from which all two were landed. Samples were collected from both whales.

#### *5.1.6 Humpback whales off West Greenland*

In 2023, two humpback whales were struck and landed off West Greenland (both female). In addition, one humpback was caught as bycatch in fishing gear; this whale was euthanized and not included as catch. Samples were obtained from two whales.

Attention: C-A

The Subcommittee noted that no change to the present limits were envisaged. The Subcommittee therefore:

- (1) **Noted** the discussion in 2018 and the tentative abundance estimates from the MONAH<sup>1</sup> project (2004/5) for the North Atlantic between 8,000-13,600 although the extent to which this tentative estimate can be applied to the south eastern Caribbean in the context of the St Vincent hunt is unclear;
- (2) **Noted** that in accord with the advice provided in the Aboriginal Whaling Scheme (AWS), on the provision of safe management advice;
- (3) **Advised** that, as in 2018, given the information on abundance in the North Atlantic combined with the size of the requested catch/strike (an average of four annually), continuation of the present limits will not harm the stock.

In providing this advice, the Subcommittee **noted** its previous recommendation that an SLA be developed as soon as an in-depth assessment of North Atlantic humpback whales is completed. It therefore **recommended** that the Commission facilitates the work outlined by the Committee to achieve this: i.e., after the holding of the already agreed Workshop considering data (including abundance estimates) and initial stock structure hypotheses, an intersessional workshop is held in early 2026 to begin the in-depth assessment including initial modelling to ensure progress if not completion of the in-depth assessment at the 2026 meeting to allow *inter alia* SLA development as soon as possible.

<sup>1</sup>MONAH Project: More years of the North Atlantic Humpback Project

#### 5.1.7 Humpback whales off St. Vincent and The Grenadines

In 2023, one female humpback whale was struck and landed off St. Vincent and The Grenadines.

### 6. BIENNIAL WORKPLAN

In 2026, the Subcommittee will review new biological information and catch information on species and stocks subject to aboriginal subsistence whaling. The Subcommittee notes that intersessional work may be necessary to review information received in the intersessional period.

### 7. BUDGET REQUESTS

The Subcommittee has no budget requests.

### 8. ADOPTION OF REPORT

The report was adopted on April 28 2024 at 09:00.

Walløe announced he was stepping down as Chair of the Subcommittee. Walløe has participated in the SC since 1988 and has worked on Aboriginal whaling issues since 1989. The Subcommittee thanked him for his service, professionalism and leadership.

#### REFERENCES

- Eguchi, T., Lang, A. R., & Weller, D. W. 2023. Eastern North Pacific gray whale calf production 1994-2023. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC 685. [Available at: <https://doi.org/10.25923/e9at-x936>]
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- Polyakova, O. V., Filatova, O. A., Fedutin, I. D., Litovka, D. I., Bukenov, B., Artaev, V. B., Humston-Fulmer, E. M., Binkley, J., Kosyakov, D. S., and Lebedev, A.T. 2023. Solving the mystery of the Chukotka stinky gray whales. *Chemosphere* 315: 137785. [Available at: <https://doi.org/10.1016/j.chemosphere.2023.137785>]
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## **Appendix 1**

### **Agenda**

1. Convener's opening remarks
2. Election of chairs
3. Appointment of rapporteurs
4. Available documents
5. Discussion of stocks subject to ASW
  - 5.1 New information and progress on recommendations
    - 5.1.1 Eastern Canada/West Greenland bowhead whales
    - 5.1.2 Bering-Chukchi-Beaufort Seas bowhead whales
    - 5.1.3 North Pacific gray whales
    - 5.1.4 Common minke whale stocks off East Greenland
    - 5.1.5 Common minke whale stocks off West Greenland
    - 5.1.6 Fin whales off West Greenland
    - 5.1.7 Humpback whales off West Greenland
    - 5.1.8 Humpback whales off St. Vincent and The Grenadines
6. Biennial workplan
7. Budget requests
8. Adoption of report