

Annex M

Report of the Subcommittee on Other Northern Hemisphere Whale Stocks

Members: Cholewiak (Convenor), Robbins (co-convenor), Allison, Angliss, Babey, Banga, Bell, , Bickham, Biuw, Bolanos, Branch, Brownell, Burkhardt, Buss, Butterworth, Cassani, Clarke, Cooke, Cerchio, Cisternino, Clarke, Collier, Evangelista, Freitas, Fufe, Garrison, Goetz, Han, Heinemann, Hines, Iida, Isoda, Jones, Katara, Kelly, Kema, Kim, Kitakado, Leal, Lee, K., Lee, M., Linden, Long, Lucke, Lundquist, Maldonado, Mallette, Matsuoka, Mesnick, Mizroch, Nelson, O’Loughlin, Øien, Olson, Palka, Pampoulie, Porter, Park, Punt, Randrup, Reeves, R., Reeves, S., Robson, Rowles, Sackett, Schubert, Scordino, Seakamela, Sigurðsson, Songhai, Stimmelmayer, Thomas, Tiedemann, Urbán, Vely, Viloría, Walløe, Warrie, Webster, Weinrich, Weller, Wilberg, Wilkin, Witting, Wright, Zerbini.

1. INTRODUCTORY ITEMS

1.1 Opening remarks

Cholewiak welcomed the participants to the Subcommittee on Northern Hemisphere Whale Stocks.

1.2 Election of chairs

Cholewiak was elected as Chair with co-chair support from Robbins.

1.3 Appointment of rapporteurs

Goetz was appointed as rapporteur.

1.4 Adoption of agenda

The adopted agenda is given as Appendix 1.

1.5 Review of available documents

The documents available to the subcommittee were identified as: SC/69B/NH/01, SC/69B/NH/02, SC/69B/NH/03, SC/69B/NH/04, SC/69B/NH/05, Bolanos-Jimenez & Gutierrez (2024) and Marine Mammal Commission (2024).

2. EVALUATION OF POTENTIAL NEW *IN-DEPTH ASSESSMENTS*

2.1 North Pacific blue whales

Blue whales in the North Pacific (*Balaenoptera musculus*) are generally considered to comprise two populations: the eastern North Pacific (ENP population), and the central and western North Pacific (CWNP population). In 2016, the Committee assessed the ENP population as ‘almost recovered’ (IWC, 2017) and has been evaluating the data available to assess blue whales in the less studied central and western North Pacific

Branch and colleagues provided an update on the data available for an assessment, primarily from analyses of IWC-POWER surveys that are still underway. IWC-POWER has completed its planned survey coverage twice for all of the regions where blue whales are expected in the North Pacific (i.e. not including the strata north of the Aleutian Islands where blue whales have almost never been sighted or caught). Thus, it should be feasible to obtain two abundance estimates from this area. Abundance estimates are being generated for blue whales from the IWC-POWER data, combined with Japanese surveys to the west and south of the IWC-POWER surveys; together these surveys cover the complete range of CWNP blue whales. The resulting combined estimates will be for two time periods covering the two sets of IWC-POWER surveys. Analyses are being led by Kitakado and Matsuoka and are planned to be submitted for publication.

An open question is whether these surveys cover only the distribution of the population in the CWNP or also cover some of the range of ENP blue whales. Each population has a distinctive song, and according to the

analyses of Monnahan *et al.* (2014), who fitted spatial smoothers to passive acoustic data, some of the eastern portion of the IWC-POWER surveys in the Gulf of Alaska could potentially include some ENP blue whales. Cascadia Research Collective (CRC) had previously matched all photo-ID data from the IWC-POWER surveys from 2010 through 2013 against their extensive catalogue of ENP blue whales. No matches were found for those 13 individuals. A request was made to the Secretariat for photographs from the 2014-present IWC-POWER surveys, resulting in 7,864 photographs from the 2014–2022 surveys being sent to CRC. Photographs of 52 individuals from 49 encounters from 8 July 2016 to 23 September 2022 were judged suitable for photo-ID matching. No matches were made against the >2,700 individuals (>19,000 encounters) catalogued by CRC through 2023. For reference, new photos taken in the core range of the ENP population have a >50% chance of being matched to an existing individual in the CRC catalogue. Thus, at most, only a small proportion of the individuals sighted in the IWC-POWER surveys likely came from the ENP population.

Lang is leading an effort to compare mtDNA genome sequences of CWNP blue whales sampled from IWC-POWER surveys to those for ENP blue whales to evaluate population structure in the North Pacific; analyses are underway but are not yet completed. Sremba is leading an effort to compare whole genome sequences generated from the IWC-POWER survey samples to those in the ENP.

Randrup and Branch plan to lead a preliminary stock assessment for CWNP blue whales once abundance estimates are available from the combined IWC-POWER and Japanese surveys. Catch data will be taken from Monnahan *et al.* (2014), since that analysis separated North Pacific catches between the CWNP and ENP population using spatial smoothers fit to passive acoustics data.

The subcommittee welcomed the update on new data and progress toward a preliminary assessment of CWNP blue whales. In discussion, the subcommittee noted that the CWNP abundance estimates and pending genetic analyses are of critical importance for the assessment. Any new abundance estimates and molecular genetic analyses of stock structure will need to be reviewed by the relevant subgroups of the Committee before an assessment can be completed. The new abundance data available for ENP blue whales on the US West Coast have already been endorsed as suitable for assessment (IWC, 2022, p.84).

Attention: SC

The subcommittee continues its work to assess blue whales in the North Pacific, especially in the central and western areas. It reiterated that an abundance estimate for CWNP Pacific blue whales using data from IWC-POWER and JARP/JARPNI surveys is critical for the assessment (IWC, 2019, p.29; IWC, 2023, p.20) and **recommended** that abundance estimates become available prior to the SC70 meeting in order to be reviewed intersessionally by the Standing Working Group on Abundance Estimates, Stock Status and International Cruises in preparation for an In-depth Assessment.

2.2 North Atlantic right whales

In response to the Committee's request (IWC, 2023, p.21), the US provided an update on North Atlantic right whale (NARW, *Eubalaena glacialis*) population status and management initiatives.

SC/69B/NH/01 described US management efforts to promote NARW recovery. The latest preliminary estimate suggests there are approximately 360 individuals remaining, with fewer than 70 reproductively active females. The Unusual Mortality Event (UME), declared in 2017, remains ongoing and includes 123 individuals as of March 2024. In October 2023, NOAA Fisheries released an interactive speed zone dashboard that shows high overall vessel compliance with mandatory NARW vessel speed regulations. The vessel traffic data contained in the dashboard are generated from Automatic Identification Systems (AIS) and they allow users to explore vessel traffic by speed, season, month, speed zone, and vessel type. Also, in 2023, NOAA Fisheries established an internal North Atlantic Right Whale Health Assessment Implementation Working Group to build an integrated health assessment program to leverage current and cutting-edge techniques for population monitoring and management as well as address critical knowledge gaps. During this same time, NOAA released a population viability analysis (PVA) tool, representing a 5-year collaboration with a variety of partners (see SC/69B/NH/03). NOAA continues to work with the Atlantic Large Whale Take Reduction Team to develop recommendations for reducing entanglements in fixed gear fisheries. Additionally, the agency is investing heavily in the development of innovative fishing gear technologies, such as on-demand gear that eliminates persistent vertical buoy lines (SC/69B/HIM/02). NOAA's proposal to change speed regulations to reduce vessel strike risk, informed by a coast wide collision mortality risk assessment that considered updated information on right whale distribution, vessel traffic patterns, and vessel strike mortality and serious injury events, garnered over 90,000 public comments; the Agency has completed its consideration of those comments and the final action is under review by the US

government. Further, NOAA convened a North Atlantic right whale Vessel Strike Risk Reduction Technology Workshop to explore and promote new technologies to reduce the risk of vessel strikes, as they investigate options to foster research, development, testing, and operationalisation of innovative tools and management practices. In September 2023, NOAA Fisheries co-hosted a North Atlantic right whale tagging workshop with the US Marine Mammal Commission and US Navy, in coordination with Fisheries and Oceans Canada to review the best available science and inform future planning and permitting decisions regarding the use of satellite telemetry for right whales. Finally, NOAA continues trans-boundary collaboration with Canada to facilitate information sharing and reduce threats.

SC/69B/NH/03 provided an update on NARW population status. The population continues to decline, with median total abundance during 2022 estimated at 356 individuals (95% credible interval 346-353). The model results continue to show a diverging sex ratio with an estimate of only 147 (95% CI: 140-153) females in the population during 2022. A total of 34 mortalities were documented from 2017-2021, 9 from entanglements and 11 from vessel strikes. One perinate was found dead, presumably from natural causes. The cause of death for the remaining 13 cases was undetermined. Between the start of 2022 and 12 April 2024, 6 mortalities have been documented, all in US waters: 1 calf, 1 yearling, and 2 adults died from vessel strikes, 1 subadult from chronic entanglement, and 1 perinate from maternal abandonment. In the 2024 calving season (winter 2023-2024), 19 females were observed with calves. Fifteen females were known to have calved previously, and they ranged in age from 16 to at least 42 years old (based on known ages and/or years in the catalogue). Four females had their first documented calf at ages ranging from 16-19 years old. Three calves are presumed to have been lost on the calving grounds, one calf died following a vessel strike, and one calf is now considered a serious injury following the death of its mother from a vessel strike. Based on the most recent population estimate, fewer than 70 females known to have calved are likely (>50% probability) still alive. A population viability analysis (PVA) tool was developed to examine the role of various threats to species extinction risk (Runge *et al.*, 2023). Results indicated a high risk of extinction (0.93) under the status quo demographic rates that were observed during 2013-2019, a period of high mortality. A threats analysis indicated that eliminating either entanglements or vessel strikes entirely resulted in extinction probabilities of 0.05 and 0.34, respectively, highlighting the significant roles of these threats to current extinction risk.

The subcommittee thanked the USA for providing updates on the management and population status of NARWs.

In discussion, the authors clarified that new tools to detect speed from AIS on vessels in US waters showed relatively high-speed compliance overall, but less so in voluntary zones, and that education and enforcement are ongoing. While the importance of measuring speed compliance in US waters was recognised, the subcommittee noted the importance of understanding speed compliance throughout the entire NARW range, including Canadian waters. In relation to the population status of NARW, and the related PVA, the subcommittee highlighted the importance of linking extinction risk to specific sources of human impact, such as entanglement and vessel strikes. The data needed to determine cause of death relies on the work carried out by stranding networks and the subcommittee expressed concern that the John H. Prescott Marine Mammal Rescue Assistance Grant Program that normally provides partial funding for the US stranding network (on a competitive basis) was not included in the President's Budget for fiscal year 2025. The subcommittee discussed the fact that such funding is critical to ensure that US stranding networks can continue to operate.

The subcommittee acknowledged that despite the immense amount of work underway to understand NARW distribution, there are still large data gaps within their known range, particularly in offshore waters (see also IWC, 2022, p. 50). The subcommittee further discussed the importance of collaborations among research programs, including those in Iceland and Greenland that have the potential to detect NARW in the northern part of their range. Plans for a new collaborative passive acoustic monitoring effort in the Cape Farewell Ground, between Greenland and Iceland, were noted. It was also noted in discussion that it could be productive to examine existing passive acoustic datasets that had not yet been analysed from regions within the northern part of the NARW range.

Pampoulie provided information on two previous sightings of single NARWs in Icelandic waters (one confirmed in 2018 and one unconfirmed in 2023). The subcommittee welcomed this information and noted that the confirmed sighting was of a known individual and had been previously added to the North Atlantic Right Whale Consortium database.

The US Marine Mammal Commission hosted a NARW satellite tagging workshop on 12-15 September 2023 in Herndon, Virginia, USA (Marine Mammal Commission, 2024). This expert workshop reviewed knowledge gaps concerning NARW movements and ecology, tag technologies commonly used on large cetaceans, and United

States and Canada permit requirements – all meant to inform research planning and permitting decisions. Knowledge gaps that might be addressed by tagging fell into the categories of identifying patterns of spatial distribution, movements and behavior in relation to areas of threats such as vessel-strike and entanglement in surface-buoyed fishing gear, and fine-scaled behavior in the vicinity of known threats. Outstanding urgent questions concerning whale distribution, movements, habitat use and behavior, once addressed, would better position managers and policy makers to implement efficient and effective conservation measures. Given the concern for the small and declining NARW population and the declining body size and poor condition of individuals, it is important to balance the knowledge to be gained from tagging against the possible impacts on health of individual whales, as well as to consider whether other research methods might be used to help answer the questions. The workshop concluded that telemetry is a viable technique that can provide continuous movement data for the tagged individuals, show individual animals' movements between known and unknown habitats, and increase understanding of whale behavior and habitat use for various lengths of time, depending on the type of tag. Consolidated tags (Type C, Andrews *et al.*, 2019) have been successfully used with western gray whales (*Eschrichtius robustus*), Arabian Sea humpback whales (*Megaptera novaeangliae*), and southern right whales (*Eubalaena australis*) to elucidate longer-term movement patterns and habitat use. Type C tag designs have been modified based on observations from follow-up studies. More durable welded and 3-D printed versions had significantly longer deployment durations and fewer to no observed health effects on tagged individual humpback and southern right whales. 'Best Practice Guidelines for Cetacean Tagging' (Andrews *et al.*, 2019) remains the best available resource to guide the implementation of tagging studies. Follow-up work is underway to develop criteria to identify potential NARW tagging candidates and to review the information gained from previous tag deployments.

The subcommittee was previously advised of this planned workshop (see IWC, 2023, p.21) and it welcomed these details of its outcomes. In considering the findings in the workshop report (MMC, 2024), the subcommittee recognised that the costs and benefits of consolidated Type C tags on NARWs should be made clear and weighed against each other, and in the context of the use of other methods, when deciding whether to proceed with a tagging program. In such an analysis, costs can be defined primarily as 'losses' to the whale population in terms of reproduction, health and survival; benefits as 'gains' to the population in terms of information that leads to positive conservation and management outcomes, reducing threats to reproduction, health and survival. The subcommittee noted that the documented risks, short-term responses, and long-term impacts of Type C tagging on other whale species (e.g., North Atlantic humpback whales and southern right whales) is important to the discussion of tagging NARWs, but that comparative analyses should also be conducted to assess the potential value to the conservation of the population. The subcommittee further noted that such a study should move beyond a cursory descriptive list of potential outcomes, and specifically use the work done on other species, to describe what types of new insights could be revealed through a tagging program on NARWs.

One concern raised in the 2023 workshop was whether the potential sample sizes (i.e., number of whales tagged) obtained would be too small to effectively inform management actions. In discussion, the subcommittee agreed that even a small number of tagged animals can be used to identify areas where less invasive technology can then be used to fill data gaps (e.g., passive acoustic monitoring). In some cases, data obtained from only a few tagged individuals have played a direct role in positive management resolutions, as was true for western gray whales. Another example is that a relatively small number of tagged Hawaiian false killer whales (*Pseudorca crassidens*) played a major role in listing one stock under the Endangered Species Act and in the management of bycatch.

The subcommittee welcomed updates on this topic as well as on a study being undertaken by New England Aquarium and colleagues to assess the health impacts of previous satellite tag deployments on NARWs.

The subcommittee also agreed that the NARW would be a candidate to consider for the IWC extinction initiative.

Attention: SC, CG, G, R, S

The subcommittee strongly reiterated its serious concern over the status of North Atlantic right whales, given its concerning population demographics and decline, and the urgent need for both the USA and Canada to eliminate human-caused North Atlantic right whale mortality (IWC, 2021, p.41; IWC, 2023, p.21) and;

1. **recognised** that ship strikes and entanglement in fishing gear are the two major causes of North Atlantic right whale mortality (IWC, 2021, p.41) and strongly supports efforts to reduce these, and;
2. **agreed** that new modeling evidence supports the long-held scientific understanding that eliminating these impacts could reverse the risk of species extinction, and;

3. **strongly recommended** accelerated efforts to develop, test, and adopt methods of fishing that reduce the potential to entangle right whales (IWC, 2023, p. 21), and;
4. **strongly encouraged** the United States and Canada to urgently incentivise the use of whale-safe fishing gear including by subsidising the acquisition of such gear and expeditiously authorizing the use of such gear, and;
5. **encouraged** continued updates from the USA on its research and management efforts and their outcomes, and;
6. **encouraged** a study on Type C satellite tagging research that explores the potential conservation benefits for NARW based on what has been learned by tagging other endangered large whale species, and;
7. **encouraged** the Secretariat to invite a representative from Canada to SC70 to present on their NARW research and management initiatives, including the use of uncrewed aerial systems surveys and compliance to vessel speed restrictions, and;
8. **recommended** that all stakeholders share detections of NARW from outside their known range to the North Atlantic Right Whale Consortium, and;
9. **expressed concern** about lack of funding to stranding networks to obtain data needed to understand whale deaths and recommended that government resources be allocated to continue collecting this important information.

2.3 North Atlantic humpback whales

A Comprehensive Assessment of North Atlantic humpback whales was undertaken in 2001 and 2002 (IWC, 2002; IWC, 2003). Although that assessment greatly increased knowledge about North Atlantic humpbacks, its results did not completely capture observed population trends relative to predicted carrying capacity (IWC, 2003, Punt *et al.*, 2006). In 2018, the Committee agreed that it was timely to consider a range-wide In-Depth Assessment (IWC, 2019, p.133).

An intersessional email group has since been collecting and evaluating available data for the purpose of assessing the North Atlantic humpback whale population. Robbins updated the subcommittee that virtual and in-person meetings are planned intersessionally, in conjunction with IA and IST, with a goal of initiating the assessment prior to SC70. Jones confirmed that work is planned to provide additional data on feeding-feeding and breeding-breeding movements that are needed for assessment modeling (IWC, 2023, p.22). Other new findings from the North Atlantic Humpback Whale Catalog that are relevant to the assessment can be found under Item 21.2.7. Of particular note for the assessment was that the first photographic identification match was made between the Cape Verde Islands and West Greenland (Chosson *et al.*, 2024) and further discussion of this information can be found under Item 7.1.7.

The subcommittee thanked Jones for her update and recognised the considerable effort undertaken by both her and Palsbøll to provide ocean-scale information on movements and population structure to facilitate an assessment. The subcommittee also thanked the intersessional group for its on-going work and expressed support for its plans to advance the assessment.

Due to time constraints at SC69B, the majority of new information on North Atlantic humpback whales will be considered by the intersessional group. However, Sackett reported on the updated results of a passive acoustic monitoring study conducted off Dakar, Senegal, from June 2021 to May 2023. Humpback song was detected during one boreal winter period, and preliminary analyses demonstrate that the song characteristics are similar to other Northern Hemisphere Song. Additionally, song was detected during two austral winter periods, which corresponded to song recorded from the Southern Hemisphere population. The results suggest that this region may represent an expansion of the Cape Verde/West Africa Distinct Population Segment breeding area for the Northern Hemisphere population. The results also reinforce previous reports of Southern Hemisphere humpback whales occurring in the North Atlantic, off West Africa and Cape Verde Islands.

The subcommittee thanked Sackett for the update and noted with interest the inter-annual variation in singing activity at this site. On a global scale, breeding ground distribution is influenced by sea surface temperature (SST, Rasmussen *et al.*, 2007), regardless of latitude. It was therefore suggested that an analysis of variable oceanographic data, like SST, might help to explain changes in the seasonal use of this habitat. Cross-hemispherical movements of Northern Hemisphere stocks have also had relevance for other species, see Items 2.3, 3.1, 3.2.

Attention: C, CG, SC, R

The subcommittee continues to collect and evaluate information relevant to an in-depth assessment of North Atlantic humpback whales (IWC, 2019, p.18; 2020, p.131; 2021, p.47; 2022, p.52; 2023, p.22). It **recommended** the following:

1. conducting an intersessional in-person workshop in late 2024/early 2025 to examine available information in the context of assessment, and;
2. working with the IST and IA subcommittees to develop plans for an in-person workshop in early 2026 to initiate the in-depth assessment.

2.4 Rice's whales

The Rice's whale (*Balaenoptera ricei*, Rosel *et al.*, 2021) is the only year-round resident baleen whale in the Gulf of Mexico, with an estimated population size of about 50 animals (Garrison *et al.*, 2020). The subcommittee has previously expressed serious concern about this stock (IWC, 2022, p.53, IWC, 2023, p.22).

SC/69B/NH/05 provided an update on the assessment surveys, passive acoustic monitoring, and other research being conducted by the NMFS Southeast Fisheries Science Center and colleagues aimed at improving the understanding of the population status, spatial distribution, and ecology of the endangered Rice's Whale in the Gulf of Mexico (GoMex). The primary focus of recent research has been to better understand Rice's whale spatial distribution and habitat use, particularly in the central and western GoMex. NMFS conducted a vessel-based line transect survey during the summer of 2023 and is planning another in 2024 to provide data to update the abundance estimate and habitat models. In the central and western portions of the northern GoMex, both passive acoustic monitoring and an aerial survey off the coast of Texas have demonstrated that Rice's whales routinely use these habitats. A recent paper by Soldevilla *et al.* (2024) documented passive acoustic detections of Rice's whales in this region and, for the first time, confirms their presence in Mexican waters. Several recent papers have documented Rice's whale foraging behavior and trophic ecology and provide the basis for understanding the prey and habitat requirements needed to support the population. The NMFS has proposed to establish critical habitat for Rice's whales, is in the process of developing conservation and recovery plans for the species and has recently included Rice's whale in the 'Species in the Spotlight' program. Continuing research efforts will include deployment of PAM in Mexican waters to better understand habitat use, tracking and localisation of animals in the core habitat and the western Gulf, kinematic tag studies to document foraging and movement behaviors, and use of eDNA sampling to document presence.

The subcommittee welcomed the update on Rice's whale research and management and acknowledged that the update presented was responsive to several of the recommendations put forward at SC69A (IWC, 2023, p.22).

The subcommittee noted the importance of better understanding Rice's whale presence in the western Gulf of Mexico, and whether acoustic data from the western Gulf of Mexico could be indicative of a different behavioral state or stock structuring. Garrison clarified that both photographs and genetics are being analysed to determine if these tools can be used to identify potential sub-populations of Rice's whales within the Gulf of Mexico. With specific regard to the characterization of acoustic data, the subcommittee reiterated the importance of distinguishing between calls and songs (IWC, 2023, Annex M), and suggested that reported geographic differences of Rice's whale vocalisations between the core area and western Gulf should be considered in the context of geographic dialects present in other baleen whale and bird song (e.g., Kroodsma and Miller 1996; Planqué *et al.*, 2014).

The subcommittee also discussed the need for analysing passive acoustic data along the US eastern seaboard to assess potential Bryde's or Rice's whale vocalisations outside of the GoMex. Garrison noted that they have not looked for detections of Rice's whales along the southeast US Coast or Caribbean based on the possible historical presence of Rice's whales in these areas. Having been advised that the current habitat prediction models have been constrained to the Gulf of Mexico, the subcommittee also suggested the constraint be lifted to potentially identify other Rice's whale habitats outside of the GoMex.

With regard to opportunistic species detection, Garrison also informed the subcommittee of a new effort to encourage public reporting of whales in the US Gulf of Mexico. Thus far, it has yielded two confirmed Rice's whale sightings, and real-time mapping of such sightings will be explored in the future.

SC/69B/NH/04 reported on the difficulty of visually distinguishing between three species of medium-sized

baleen whales occurring off the US eastern seaboard and the waters of the northern Gulf of Mexico, especially for carcasses in states of advanced decomposition. Three long-term datasets were queried for records of sei (*Balaenoptera borealis*), Bryde's (*B. edeni*) and Rice's whales, for the period of 1919-2023. The datasets included marine mammal records along the US East Coast and Gulf of Mexico, curated by the Smithsonian Institution's National Museum of Natural History (1608-2023) and two National Oceanic and Atmospheric Administration (NOAA) Regional Stranding Network databases [the Northeast (i.e. New England/Mid-Atlantic, 1980-2022) and Southeast regional data (1978-2023)]. A total of 67 stranding records identified as sei, Bryde's and Rice's whales were reviewed for accuracy of species identification. Of the 67 records, 37 were considered sei whales, and 18 were considered Bryde's-like whales. However, none of the "Bryde's-like" strandings had been confirmed genetically. In contrast, a total of 12 stranded Rice's whales have been genetically confirmed; 8 from the Gulf of Mexico and 4 from the US eastern seaboard, from Florida to Virginia. Several of these had previously been mis-identified as Bryde's whales. Prior to genetic work by Rosel *et al.* (2021), the identification of Bryde's and Rice's whales was further complicated by similarities in baleen characteristics. To date, no confirmed Bryde's whales have been identified along the US east coast, including Gulf of Mexico. The authors concluded that in-depth genetic investigations are needed for all Bryde's-like whales, including sei whale strandings from the Gulf of Mexico, as it is possible they could be the Southern Hemisphere subspecies (*B. borealis schlegelii*).

The subcommittee welcomed the new information presented in SC/69B/NH/04 and noted the importance of accurate species identification, especially in light of the reports of Southern Hemisphere species occurring in Northern Hemisphere waters (see Items 2.3 and 3.2). The subcommittee discussed the fact that there is little available information on field characteristics that could be used to visually distinguish Rice's whales reliably from Bryde's whales. It suggested that a guide could be produced based on previous observations of the diagnostic external characteristics specific to Rice's whales to improve species identification. This type of detailed description has been successful for facilitating identification of other previously mis-identified species, such as Omura's whales (Cerchio *et al.*, 2015).

With regard to historical strandings, the subcommittee recommended the re-examination of a single whale specimen (previously thought to be two samples) mentioned in Miller (1928) from the coast of Campeche, Mexico, along the western side of the Yucatan Peninsula. Mead (1977) had suggested this specimen was likely to be Bryde's whales based on photographs. The subcommittee also agreed that any existing genetic samples of Bryde's-like whales should be analysed to determine if they are mis-identified Rice's whales. It was also noted that an additional sample may be available from Cuba.

The subcommittee mentioned that the Rice's whale would be a candidate for the IWC extinction initiative.

Attention: CG, C, SC, CC

The subcommittee reiterated its serious concern about Rice's whale, an isolated population in the Gulf of Mexico with an estimated abundance of only around 50 animals (IWC, 2019, p.26; 2020, p.31; 2021, p.48; 2022, p.53, 2023, p.22) and recognised the substantial amount of work that has been conducted by the USA on research and management initiatives over the last year. It welcomed additional updates at the next SC meeting.

Specifically, the Subcommittee:

1. **reiterated** previous recommendations for the US to use all available legal and regulatory tools to provide maximum protection for this species (IWC 2023), and;
2. **recommended** that the genetics of all historic Bryde's-like whale samples be examined, including a historic balaenopterid specimen from the coast of Campeche, Mexico, to confirm species identification, and;
3. **recommended** extending the predictions of an existing Gulf of Mexico predictive habitat model to include areas along the east coast of the US, and;
4. **encouraged** publications on the external morphology of both live and stranded Rice's whales to facilitate accurate visual identifications.

3. NEW INFORMATION ON OTHER NORTHERN STOCKS

3.1 Unusual mortality events affecting northern stocks

Wilkin provided a verbal update on the large whale Unusual Mortality Events (UMEs) declared in the western North Atlantic Ocean. Since 2016, three UMEs have been declared by the US National Marine Fisheries Service for baleen whales in the western North Atlantic Ocean along the coast of Canada and the United States. These

three concurrent and ongoing events involve humpback whales (2016-present), North Atlantic right whales (2017-present), and minke whales (*Balaenoptera acutorostrata*) (2017-present). To date, over 512 whales are included as part of these UMEs: 220 humpback, 126 North Atlantic right, and 166 minke whales. The humpback and minke strandings represent confirmed mortalities, with 29 humpback and 22 minke whales confirmed dead since last year's IWC SC meeting. The North Atlantic right whale UME also includes animals last seen alive but injured, with 40 mortalities, 34 serious injuries, and 52 morbidities (sub-lethal illness/injury). Necropsy (or at minimum internal examination) proved essential in diagnosing blunt force trauma consistent with vessel strike, as animals rarely had obvious external signs of vessel strike (with a few exceptions of lacerations from propellers). Recently, there has been high public interest in large whale strandings, particularly in the US mid-Atlantic Bight region, related to concerns about offshore wind development. However, it was noted that there is no evidence that offshore wind activities are linked to any recent large whale mortalities. In addition, further details on subcommittee discussions related to wind farm development activities can be found in Annex G, Items 5.1, 5.2. In addition to their importance for understanding these UME events, samples obtained from the carcasses are a potential source of data for broader studies of these species in the North Atlantic.

The subcommittee thanked Wilkin for providing an update on the ongoing UMEs along the US East Coast. In discussion, the subcommittee recognised the value of necropsies in understanding animal health (see also Item 2.2) and the potential of samples being used to inform other work of the Committee. The subcommittee encouraged additional updates about these UMEs at the next SC meeting.

3.2 North Atlantic common minke whales

New information was received for North Atlantic common minke whales focused primarily on an on-going UME on the US East Coast (see Item 3.1 for details). However, the subcommittee also received information on a confirmed case of Antarctic minke whales (*Balaenoptera bonaerensis*) in the North Atlantic. Bolanos-Jimenez and Gutierrez (2024) presented the first record of an Antarctic minke whale in Venezuela and the Caribbean Sea, based on the live-stranding of a male in the "Ciénaga de los Olivitos" Wildlife Refuge on 18 March 1997. This animal was initially misidentified as a Bryde's whale, but further examination of diagnostic characteristics, including the color pattern and the baleen plates, identified the animal as an Antarctic minke. This is the sixth species record outside its primary range in Antarctic waters. Researchers working in the Wider Caribbean Region and other tropical areas are encouraged to become familiar with the diagnostic characteristics of Antarctic minke whales in the event of a stranding or an at-sea encounter.

The subcommittee welcomed this information and acknowledged the importance of robust species identification in light of reports of animals in areas that are considered outside their typical range. The subcommittee asked whether Antarctic minke whales have been detected in the UME off the US East Coast. Rowles noted that while none have been identified, it would not necessarily have been possible to determine in all cases due to carcass decomposition and other factors. However, samples from 16 carcasses have been analysed genetically, and all have thus far been confirmed to be common minke whales.

3.3 North Pacific right whales

North Pacific right whales (NPRWs, *Eubalaena japonica*) are recognised as two genetically distinct stocks (Pastene *et al.*, 2022): the eastern stock which occupies the Gulf of Alaska, Bering Sea, the waters off Hawaii, and off the west coast of North America, and the western stock which inhabits waters off of and around China, Japan, Korea, and Russia, including the Sea of Okhotsk. In 2008, the abundance estimate for the eastern NPRW was around 30 animals but that did not include individuals from the Gulf of Alaska (Wade *et al.*, 2011, LeDuc *et al.*, 2012). Currently, there is no reliable population estimate for the western stock but it is thought to be between 400 and 1,100 individuals (Matsuoka *et al.*, 2021).

Wright provided information on the first insights into possible historical migratory patterns of NPRW using stable isotope analysis of all known baleen plates in North America (n=6; spanning 1862-1961). Of the six plates analysed, two are from males killed in the mid-20th century while the remaining four plates are from animals of unknown age or sex. The analysis identified one duplicate plate from the unknown plates. The five remaining plates exhibited unique longitudinal trends in bulk baleen tissues across plates and showed evidence of year-round feeding, contradicting prior belief that all NPRW seasonally fast. Amino acid stable isotope analysis supported that the observed longitudinal trends in bulk baleen tissues represent baseline shifts. Three of the whales had lower than expected trophic level estimates, similar to contemporary NPRW skin biopsies of juveniles and calves, suggesting these plates may have come from younger animals. Mixing models used to estimate possible overwintering areas of individuals found that all sampled NPRWs seasonally used a region comprised of Longhurst Provinces CCAL (Coastal California current), CAMR (Central American coast), and NPEC

(North Pacific equatorial countercurrent), termed the California Current and waters south province. She noted that the exclusive overlap of one animal within this region suggested the first evidence of possible residency at lower latitudes, although incomplete metadata precluded exploring whether sex, age, or reproductive status could explain this strategy. She further suggested that an adult male used two overwintering areas, the California current and waters south province and the Pacific subarctic gyres province, while another male possibly exhibited residency on feeding grounds while a juvenile. Together, these results were taken by Wright to suggest the California current and waters south province was an important habitat for historical NPRW, and that seasonal monitoring, specifically passive acoustic monitoring (PAM), in this province was recommended. A limitation of the study was the sample size, including an absence of known females and confirmed western population individuals, precluding insight into potential calving grounds of either population or overwintering areas of the western population. Thus, Wright recommended sampling additional NPRW baleen plates for bulk tissue and amino acid stable isotope ratios, prioritising females and known western population plates.

The subcommittee thanked the author for bringing this work forward and noted that the information received was responsive to a request for details on this topic (IWC, 2023, p.21). The importance of this work was noted, especially in identifying potential wintering grounds. Furthermore, the subcommittee recognised the value of collecting additional baleen plates for stable isotope analysis in order to better understand demographic variation of NPRWs. The use of PAM was also encouraged to further explore important areas identified by stable isotope analysis, especially along the US west coast.

SC/69B/ASI/05 reported 4 groups of 5 individual NPRWs during the transit survey in IWC-POWER in 2023. These sightings were outside the Critical Habitat of the right whales. The research vessel first detected the right whale sounds approximately 20 nautical miles away from the vessel using acoustic equipment, and then approached by vessel and visually identified the species as NARWs. No biopsy samples were collected due to poor weather but photographs of several individuals for photo-identification were collected and will be matched to the US catalogue.

The subcommittee welcomed this new information on NPRWs and recognised the importance of the IWC-POWER cruise as a platform for collecting important cetacean data.

Although no information on the western stock of North Pacific right whales was received, the subcommittee also welcomed new information at the next SC meeting.

Attention: SC, CG, R

Recognising that with an estimated abundance of ~30 animals in 2008, the eastern North Pacific right whale population is considered one of the most endangered populations in the world, the subcommittee:

1. **agreed** that the IWC-POWER cruises provide an important platform for obtaining detections, photos, and genetic data of North Pacific right whales and recommended that this work continue, and;
2. **reiterated** the importance of collaboration with the Russian Federation and Japan to increase the number and demographic composition of North Pacific right whale baleen plates to be used in stable isotope analyses, particularly for females and individuals from the western stock, and;
3. **recommended** using passive acoustic monitoring along the US West coast to monitor for North Pacific right whales in waters identified as historically important areas.

3.4 North Pacific sperm whales

In 2003, the Scientific Committee agreed to evaluate the possibility of conducting an *In-Depth Assessment* of sperm whales (IWC, 2003, p.49; IWC, 2004, p.26). An assessment research planning workshop was subsequently held (Smith *et al.*, 2005), and updates were most recently provided in 2007 (IWC, 2008, p.38), 2016 (IWC, 2017) and 2017 (IWC, 2018). One technical challenge of an assessment of this species relates to its social and population structure.

SC/69B/NH/02 presented new information on the feasibility of undertaking a future assessment of sperm whales in the eastern North Pacific/California Current. The paper summarised new data available related to sperm whale population structure, abundance, and removals, particularly in the eastern North Pacific. The paper also summarised additional information available on distribution, movements, photo-id, acoustics, and diet studies. The authors proposed that a Steering Group be established to develop a workshop proposal. The Steering Group

and subsequent workshop would be tasked with determining the information still missing and estimating if and when it might be feasible to undertake an In-depth Assessment. The subcommittee welcomed this effort to fill the data gaps needed to conduct an In-Depth Assessment on North Pacific sperm whales. The subcommittee agreed to form an Intersessional Correspondence Group (ICG) to collaborate with Cachalote Consortium researchers to support a future assessment.

Attention: SC, CG, R

Recognising that it has been almost 20 years since the last effort to assess the status of the North Pacific sperm whale population, the subcommittee:

1. **agreed** to establish an intersessional correspondence group to begin assessing available data for a North Pacific sperm whale assessment, and;
2. **encouraged** the IWC-ICG to report on its progress at the SC70 meeting.

SC/69B/ASI/05 reported the summary of sperm whale sightings during the 2023 IWC-POWER cruise in the eastern North Pacific high seas (between 40°N and the US EEZ boundary, east of 180°W and 155°W). A total of 25 sperm whale groups (26 individuals) were widely distributed in the research area. No photo-id and biopsy were collected. These sighting data will be analysed in the future under the POWER program.

SC/69B/ASI/09 provided information on the results of the Japanese dedicated cetacean sighting survey in the western North Pacific during the summer of 2023. The survey was conducted in the area between 20°N-30°N and 140°E-180° using two research vessels. A total of 26 groups totaling 54 individual sperm whales were sighted (no groups of females with dependent offspring and the mean school size was 2.1). The data will be analysed for abundance estimates and distribution at the Institute of Cetacean Research, Japan.

The subcommittee welcomed the update from the 2023 IWC-POWER cruise and Japan's 2023 dedicated cetacean sighting survey. Additionally, it acknowledged the important contribution these surveys make to the work of the Scientific Committee and welcomed updates as new information becomes available.

Attention: SC, CG, R

The subcommittee **agreed** that both the IWC-POWER cruise and Japanese dedicated cetacean sighting survey provide important information on distribution and abundance of many species, including sperm whales, and **encouraged** future reporting of data collected on these surveys.

SC/69B/ASI/12¹ reported on plans for a new program to deploy satellite telemetry tags on large cetaceans, potentially including sperm whales. Understanding cetacean behavior, migration and habitat use is critical to their protection. However, data on species occurrence and distribution in Korean waters is limited. To address this, tagging has been proposed to understand the movement and migration paths of whales in Korean waters with the goal of establishing long-term conservation and management plans for these species. Minke whales are the priority species for proposed tagging because this species is the most common baleen whale in Korean waters. However, other rorquals and sperm whales will be considered.

The subcommittee discussed the plans to tag cetaceans in Korean waters primarily from the perspective of the proposed tagging methods. In discussion, the authors clarified that two tags would be deployed initially and that further tagging efforts would be evaluated on the basis of the success of that work. The subcommittee encouraged the authors to consider the data provided from long-term tags relative to their management questions, as well as best practice guidelines, follow-up and collaboration with experienced taggers. It also inquired about the species targeted by the tag types being proposed (SPOT-177 and SPOT-372) and advised that that the longer SPOT-372 tags would not be well-suited for minke, sei or Bryde's whales, given their relatively small body size and relatively thin blubber layer. It was further noted that the use of fully-integrated tag styles is recommended as recent research indicates that they are more robust and less likely to impact the health of tagged individuals (Gulland *et al.*, 2024). The subcommittee thanked the authors for the opportunity to comment on their proposed research methodologies.

Attention: SC, CG, R

With respect to the development of new satellite telemetry programs, the subcommittee:

1. **strongly recommended** that any new projects follow the best practice guidelines for tagging (Andrews *et al.*, 2019) endorsed by the Committee, and;

¹ The Subcommittee noted that SC/69B/ASI/12 does not represent an official position of the IWC on the legal nature and designation of the waters in which the data are to be collected.

2. **recommended** photographic documentation of the tagged individual and the tag implantation site for as long as reasonably possible to assess potential health impacts to tagged whales, and;
3. **recommended** collaboration with researchers who have experience in tagging large whales to maximise success.

The subcommittee was also made aware that there are sightings and abundance data for sperm whales from line-transect surveys conducted in Korean waters in 2022. This new information will initially be considered by the ICG for North Pacific sperm whales, but the survey results for other species have the potential to contribute to the other aspects of subcommittee work in the future.

3.5 Okhotsk Sea bowhead whales

The subcommittee was informed that an update of the analysis in SC/67a/NH10 was in progress, containing an estimate of abundance and trends of Okhotsk Sea bowhead whales derived from a mark-recapture analysis of genetic and photo-id data collected through 2023. The subcommittee agreed to review the status of Okhotsk Sea bowheads at SC70 and requested that the new estimates when available be reviewed by the ASG during the inter-sessional period.

4. PROGRESS ON PREVIOUS RECOMMENDATIONS

Previous recommendations from 2023 were reviewed and updated. Completed recommendations from 2022 were closed.

5. WORKPLAN

The subcommittee agreed to the work plan in Table 1. Intersessional correspondence groups were continued to advance work under Items 2.2, 2.4 and 3.4 (see Table 2).

Table 1
Work plan for Northern Hemisphere Stocks.

Item	Intersessional 2024-26	Annual Meeting (SC70)
North Pacific blue whales	Continue to collect and evaluate available data for future in-depth assessments. Request ASI and SDDNA reviews of new abundance and stock structure information, when available.	Evaluate available data and determine assessment timeline.
North Atlantic sei whales		Review new information
North Atlantic right whales		Review new information
North Pacific right whales		Review new information
North Atlantic humpback whales	Prepare for planned in-depth assessment; convene workshop in early 2025 to compile data; prepare for IA/IST/NH workshop in 2026	Transition agenda item to IA subcommittee.
Rice's whales		Review new information
North Pacific sperm whales (central and eastern including Alaska)	Collect data for future in-depth assessment	Consider new information for assessment
Okhotsk Sea bowhead whales	Request ASI review new abundance estimate series, when available	Receive ASI recommendation on abundance estimates. Receive new information and discuss population status.
All other stocks		Review new information

Table 2
Intersessional Correspondence Groups.

Agenda Item	Group	Terms of Reference	Members
2.2	NA Sei whales	Continue to identify and evaluate data on distribution, abundance, stock structure and catches, with a particular focus on the western North Atlantic	Cholewiak (convenor), Breiwick, Brownell, Mallette, Mizroch, Palka, Robbins, Sigurðsson, Weinrich
2.4	NA Humpback whales	Continue to identify and evaluate data available for planned assessment	Robbins (convenor), Allen, Allison, Bolanos, Cerchio, Cholewiak, Chosson, Clapham, Donovan, Han, Jones, Lang, K. Lee, M. Lee Mallette, Mattila, Øien, Palka, Palsbøll, Park, Punt, Rosenbaum, Sigurðsson, Tiedemann, Vély, Weinrich, Wilberg, Weinberg, Witting
2.4	NA Humpback Assessment	Initiative In-Depth Assessment of North Atlantic humpback whales, incorporating the needs of IST	Palka (Convenor), Donovan (Co-Convenor), Biuw, Cholewiak, Katara, Oien, Punt, Robbins, Wilberg
3.4	NP Sperm whales	Identify and evaluate data available for potential future assessment	Mesnick (Convenor), Butterworth, Cooke, Cholewiak, Han, K. Lee, M. Lee, Mizroch, Palka, Park

6. ADOPTION OF REPORT

The report was adopted at 16:17h on 28 April 2024. Cholewiak and Robbins thanked the subcommittee and the rapporteur for her hard work, and the subcommittee expressed its thanks.

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Appendix 1

AGENDA

1. INTRODUCTORY ITEMS
 - 1.1 Opening remarks
 - 1.2 Election of chairs
 - 1.3 Appointment of rapporteurs
 - 1.4 Adoption of agenda
 - 1.5 Review of available documents

2. EVALUATION OF POTENTIAL NEW *IN-DEPTH ASSESSMENTS*
 - 2.1 North Pacific blue whales
 - 2.2 North Atlantic right whales
 - 2.3 North Atlantic humpback whales
 - 2.4 Rice's whales

3. NEW INFORMATION ON OTHER NORTHERN STOCKS
 - 3.1 Unusual mortality events affecting northern stocks
 - 3.2 North Atlantic minke whales
 - 3.3 North Pacific right whales
 - 3.4 North Pacific sperm whales

4. PROGRESS ON PREVIOUS RECOMMENDATIONS
5. WORK PLAN
6. ADOPTION OF REPORT