31ST MEETING OF THE NAMMCO SCIENTIFIC COMMITTEE

January 21 – 24, 2024
Fram Centre, Tromsø, Norway

REPORT

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NAMMCO

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EXECUTIVE SUMMARY

The 31st meeting of the NAMMCO Scientific Committee (SC) was held at the Fram Centre in Tromsø (Norway) on January 21–24, 2025. The meeting was chaired by Aqqalu Rosing-Asvid (Greenland) and was observed by representatives from Japan. The meeting agenda and full list of participants are available in Appendices 1 and 2, respectively.

The Items below correspond to their order in the following report.

All proposals and recommendations made by SC/31 are available in Appendix 6.

Updates from Observers (Item 4)

Observers from Japan presented research activities on large and small cetaceans for the period 2022–2024, as well as recent telemetry studies.

Updates from Council (Item 5)

Decisions made by NAMMCO Council 31 were summarised, with emphasis on two new requests to the SC concerning narwhal and beluga (Appendix 4).

Work procedures (Item 6)

Clearer categories of advice, i.e., the types of Proposals and Recommendations, given by the SC and WGs, were defined by the Secretariat, to reduce confusion in future meetings.

Interaction with other organisations (Item 7)

Updates were provided on NAMMCO interactions during 2024 with the Arctic Council and its WGs, as well as ASCOBANS, ICES, and IWC.

NAMMCO Website (Item 8)

This year, the SC will review and revise the information provided on the NAMMCO website for harp seal, hooded seal, harbour porpoise, and minke whale.

Environmental and Ecosystem Issues (Item 9)

Marine Mammal/Fisheries Interactions

Following a data call for fishing effort sent to the Parties in May 2024, the Working Group on By-catch (BYCWG) met in October 2024 to assess the data. Despite inconsistencies between the various datasets, the BYCWG was able to develop an overarching approach to quantifying the risk of exposure to by-catch for marine mammals in the NAMMCO area. This will be done by mapping the intensity of fishing effort using different gear types (each of which pose varying levels of entanglement threat to different species) and overlaying that with the density or relative abundance of a given species. These analyses will require detailed marine mammal distribution data, therefore the SC *endorsed the recommendation* of the WG, namely that the Parties facilitate access to such data, as described by the BYCWG. The SC also added *two new recommendations* for research pertaining to species distribution models, and *reiterated* that jaw samples should be collected from by-caught seals in Norway and Iceland, to improve species identification.

Multi-species Approaches to Management and Modelling

A multi-species model for the Norwegian and Barents Seas was presented, which includes fisheries as a component. Following a broader conversation about different modelling approaches, advantages, and caveats, the SC *agreed* to organise a "status" workshop, where current modelling projects in NAMMCO countries will be discussed and next steps will be determined.

Environmental Issues

The impact of pollutants on NAMMCO species of interest is, at present, implicitly incorporated into stock assessment models. The SC *agreed* that species-specific reviews on pollutants, such as those produced by AMAP, should be considered prior to stock assessment meetings, and relevant experts invited if needed.

Working group on Genetics (Item 10)

The Working Group on Genetics met in October 2024, tasked by the SC to evaluate the genetic connectivity of pilot whales, narwhals, and belugas, across their respective hunting areas in NAMMCO. Available literature and ongoing research were discussed, as they were for species scheduled for assessment in 2025 and 2026, namely, harbour porpoise, harbour and grey seal, and walrus. The WG made recommendations for further research, which the SC *agreed to forward* to the relevant species WGs. *Strongly emphasised* by both the WG and the SC was the research necessary to delineate pilot whale stock structure prior to an assessment in 2025.

Seals and Walrus Stocks (Item 11)

Bearded seal: A time series of abundance estimates and catch data for bearded seals in central West Greenland spanning the years 1981–2022 was presented. Even allowing for uncertainties in the abundance estimates, seal numbers appear high, while catch levels appear low. However, in the absence of sufficient information on abundance and stock delineation, a full assessment cannot be made at present. The SC *recommended* that (West) Greenland and Canada investigate bearded seal movements to determine if there is a shared stock between the two areas, and that Greenland also examine whether similar abundance estimates can be made from previous surveys conducted in Melville Bay and the North Water Polynya.

Ringed seal: The ringed seal a species of concern, in light of rapid environmental changes in its habitat. Logistic and financial constraints render it difficult to obtain an abundance estimate across its entire range. However, it is possible that different ecotypes exist in discrete fjord systems—similar to the one in Ilulissat Icefjord—which could potentially be monitored and managed separately. As a first step, the SC *recommended* that Greenland determine whether there are isolated ringed seal stocks in different fjord systems.

Harbour and grey seals: Research updates and the latest abundance estimates were provided for various areas within NAMMCO countries. The decline of grey seals in Norway is particularly concerning.

Harp and hooded seals: No conclusive explanation has yet been found as to why the Greenland stock of hooded seals is in decline, although increased predation of pups may be a reason. The population models for both harp and hooded seals used previously are no longer useful for assessments, so the research focus is to test alternative ways to estimate population size—harp seals are prioritised in this, as they are a hunted species.

Walrus: Research updates from Svalbard and Greenland were given. As the last walrus assessment occurred in 2018, the SC *agreed* that another should be held in 2026, with contributions from Canadian experts.

Cetacean Stocks (Item 12)

Narwhal and beluga: A new request from Council asks that the SC investigate alternative survey methods for small stocks, with a focus on narwhal and beluga in East Greenland. The SC *suggested* that new methods be explored in a workshop setting, in combination with a broader discussion on the development of alternative methods to determine population size when conventional surveys are not possible (see Item 13). For narwhal, the SC *reiterated* the recommendation to Greenland, to collect biological samples when available from East Greenland, including areas north of Scoresby Sound, to explore genetic connectivity of different stocks.

Another new request from Council asks for improved understanding of stock structure of beluga whales in East Greenland. The SC will not be able to move forward on this unless samples from any harvested animals in the area are provided.

Harbour porpoise: A stock assessment in all NAMMCO areas is needed for this species, with particular concern for Norwegian waters, where by-catch rates are known to be high. No new abundance estimates are currently available for such an assessment, with the exception of Greenland, which was covered by the NASS 2024 aerial survey. For the remaining countries, alternative survey methods will need to be explored (see also Item 13). The SC *recommended* that each country focus efforts on collecting the necessary data, with the aim of conducting an assessment in 2026.

A recent study on the accuracy of age determination methods in harbour porpoises was discussed. As age information is important for determining life history parameters, the SC *agreed* that a workshop should be organised, to discuss the appropriateness of different age determination techniques for different purposes.

Dolphins: A partial assessment of white-beaked dolphins in 2023 concluded that their removal rates in West Greenland may be unsustainable. A full assessment to determine if this is true would require more information on stock structure (whether they are linked to other areas in the North Atlantic) and struck and lost rates in West Greenland. For this purpose, the SC *strongly reiterated* the recommendation to improve estimates of struck and lost rates in the Greenlandic dolphin hunt.

Pilot whale: Research updates and progress on collecting sufficient data for a stock assessment in late 2025 were discussed. Data on abundance, life history, genetic connectivity, movement patterns, and the impact of pollutants, are required. The SC *recommended* that population structure at the scale of the North Atlantic should be determined prior to the meeting of the Pilot Whale WG (PWWG) and *urged* that pilot whale samples be prioritised for analysis within the relevant wide-scale research project (DolphinUnit). Of similar importance is the generation of robust abundance estimates from the recent cetacean survey (NASS 2024, see Item 13); it was agreed that Iceland and Norway should provide their data to the Faroe Islands, so that a single estimate can be produced for the entire region.

Northern bottlenose whale: Research updates and ways forward for an abundance and trends analysis were discussed. Norway is in charge of conducting a trend analysis, once the latest abundance estimate from NASS 2024 has been generated. Following this, the SC will conduct an internal review of all information on the species.

Killer whale: The SC discussed the possibility of conducting a stock assessment for killer whales, as this has not been done previously. Catches and struck and lost rates in certain areas of Greenland appear high, but those data may come from erroneous reports. The SC *recommended* verifying all killer whale catches every year to ensure accuracy.

Other cetacean species: Research updates were presented for other beaked whale species, as well as blue whale, common minke whale, fin whale, humpback whale, sei whale, and sperm whale.

NASS 2024 Report and Abundance Estimation (Item 13)

The 7th North Atlantic Sightings Survey (NASS) was successfully completed over the summer of 2024, with participation from all four NAMMCO member countries and the use of both dedicated and opportunistic platforms. The survey achieved approximately 80% of its originally planned coverage, despite challenges due to weather conditions, extensive ice cover, and logistics issues. Outreach efforts included a dedicated webpage with live updates (nass.nammco.org/2024) throughout the survey.

Greenland has generated abundance estimates from the aerial survey component of NASS 2024. Data processing and analysis is ongoing in the remaining countries, and the Abundance Estimates WG (AEWG) will review the estimates in future meetings (Fall 2025 and Spring 2026). Of immediate priority is the generation of pilot whale abundance estimates in a timely manner, so the AEWG can review them before the meeting of the PWWG.

As several issues with observer configuration and opportunistic platform sailing protocols arose during the survey, and as Norway is discontinuing the dedicated mosaic surveys for minke whales, the AEWG proposed that a workshop be held on alternative survey methods (such as drones, acoustics, opportunistic surveys). The SC *endorsed* this recommendation and *suggested* including a discussion on surveying small stocks (see also Item 12, Narwhal and beluga).

Collaborative projects (Item 14)

MINTAG: Updates on MINTAG tagging efforts during 2024 were presented. Different tag configurations were deployed by project participants and external collaborators, on minke, fin, bowhead, and southern right whales. Plans for deployments in 2025 were discussed, and it was emphasised that each country should match its original commitment to the project by allocating the necessary effort. The SC *recommended* maintaining open communication with other research groups involved in tagging, to facilitate the deployment of tags. The SC *supports* the MINTAG Steering Group's participation in a workshop on tag development during the biannual conference of the Society of Marine Mammalogy in 2026.

Cooperation with Japan: Japan presented updates on the ongoing investigation of the ecology of minke whales in the North Pacific, following the formation of a dedicated group (including four SC members) last year. The SC *agreed* with the methods shown and commended the rapid progress of the collaboration.

An international workshop on the use of genetic data for identification of whale stocks was held in Japan in 2024, with participation of researchers from NAMMCO countries and other members of the Genetics WG.

Management Procedures (Item 15)

Stock categorisation system: Council 30 requested the SC to propose a system for categorising NAMMCO stocks, which would reflect the abundance, status of knowledge, and levels of removals of each. A draft system was proposed, whereby stock status would be visually summarised with indications of population trends, abundance, catch and by-catch rates, and assessment status. Several possible modifications were discussed, and the system will be refined and tested intersessionally.

NAMMCO Scientific Publications (Item 16)

Volume 13 of the NAMMCO journal was published in December 2024, with the title "Marine Mammals in the North Atlantic (II)". It includes five articles, one review, and two notes. The SC *recommended* renewing the journal's editorial board, to actively guide the journal's direction and streamline the publication process. The SC *agreed* that Volume 14 should be dedicated to contributions related to outputs from NASS 2024.

Future Workplans and Budget (Items 17 and 18)

In 2024, the budget allocated for SC WG meetings was NOK 150,000, with NOK 119,071 actually expended. The budget for 2025 and draft budget for 2026, as adopted by Council 31, are NOK 295,000 and NOK 155,000.

Modifications to the allocated budgets will be proposed according to the revised SC workplan for 2025–2027 (Table 3 in the report), to ensure the participation of appropriate external experts at WG meetings and workshops. The proposed workplan remains in line with the long-term assessment plan for NAMMCO stocks that was approved by Council 31.

The 32nd meeting of the SC will be held in January 2026 and will be hosted by the Faroe Islands. The precise dates and location will be determined shortly.

Table 3. Future workplan recommended by SC/31. Meetings in bold should not/cannot be moved to other years.

2025	2026	2027
WG and WS meetings: • WG on By-catch (online) • **Abundance Estimate WG (physical)** • **Pilot Whale WG (physical, late 2025)** • JWG NAMMCO-JCNB (physical, late 2025 or early 2026) • **WS on alternative methods for abundance estimation**	**WG and WS meetings:** • Large Whale Assessment WG (physical, spring 2026) • **Harbour porpoise WG (physical, late 2026)** • **Coastal Seals WG (physical, spring 2026)** • **Walrus WG** • WG on By-catch (online) • **Abundance Estimate WG (physical)** • WG on Harp and Hooded Seals (physical)?	**WG and WS meetings:** • WG on bearded seals • WS on age estimation • WS on multispecies models
Other: • MINTAG StG: online & physical meetings • MINTAG: deployment field work and analysis	**Other:** • MINTAG StG: online & physical meetings • MINTAG: deployment field work and analysis • SMM workshop on tagging (October)	**Other:** • MINTAG StG: online & physical meetings • MINTAG: analysis • MINTAG end workshop
Participation (not organisation): • North Atlantic KW WS during Killer Whale Symposium • Trans-Atlantic tagging initiative during ECS-WS pilot whale (May 2025)? • **ECS-WS pilot whale (May 2025)**	**Participation (not organisation):**	**Participation (not organisation):**

Other Business (Item 19)

Sandra Granquist (Iceland) was unanimously elected as the new SC Chair and will assume the role after the close of Council 32 in March 2025. Norway was elected to hold the Vice-Chair position and will appoint a member of their delegation to the role in the coming weeks.

Report Review & Meeting Close (Items 20 - 21)

A draft report of the meeting was accepted by the SC in person, and minor revisions were resolved by correspondence following the meeting. The final report was accepted on February 7.

The SC applauded Rosing-Asvid for three years as SC Chair. The meeting ended at 15:57 CET on January 24, 2025.

MAIN REPORT

The 31st meeting of the NAMMCO Scientific Committee (SC) was held at the Fram Centre in Tromsø (Norway) on January 21–24, 2025. The meeting was chaired by Aqqalu Rosing-Asvid (Greenland) and was observed by representatives of Japan. The meeting agenda and list of participants are available in Appendix 1 and 2, respectively.

1. WELCOME FROM THE CHAIR AND OPENING REMARKS

The Chair of the SC, Rosing-Asvid, welcomed participants and observers to the 31st meeting of the Committee. A particularly warm welcome was extended to the observers from Japan, acknowledging the long-standing relationship between NAMMCO Countries and Japan and highlighting collaborations across several scientific projects. He then introduced Anne Kirstine Frie as a new member and Head of the Norwegian scientific delegation to NAMMCO, as well as Noor Elias, intern at the NAMMCO Secretariat. The Chair welcomed local scientists participating in parts of the SC meeting, Tore Haug (IMR) and Deanna Leonard (IMR). To facilitate communication, the Chair invited all participants to briefly introduce themselves.

2. ADOPTION OF AGENDA

The draft agenda was circulated to the committee 30 days prior to the meeting, as per the Rules of Procedure. The agenda, which can be found in Appendix 1, was adopted after adding a point under Any Other Business to elect the next Chair and vice-Chair of the committee.

3. APPOINTMENT OF RAPPORTEURS

Deputy Secretary Maria Garagouni was appointed as main rapporteur for the meeting, with the assistance of the other members of the Secretariat (Secretary General, Geneviève Desportes, Deputy Secretary Naima El bani Altuna, and intern Elias). All participants were asked to submit written summaries of presentations and lengthy interventions made during the discussion of agenda items.

4. REVIEW OF AVAILABLE DOCUMENTS AND REPORTS

4.1. NATIONAL AND ANNUAL PROGRESS REPORTS

The Chair noted that National Progress Reports for 2023 from each of the Member countries, as well as Japan, had been submitted as For Information documents.

4.1.1. Updates from observers

Documents NAMMCO/SC/31/FI06 and NAMMCO/SC/31/FI07, presented by Haruna Murata, summarised the following Japanese research projects/activities on cetaceans conducted from April 2022 to March 2024: 1) Sighting surveys for large and small cetaceans under national programs: Japanese Abundance and Stock structure Surveys in the Antarctic (JASS-A) in the Southern Ocean and dedicated sighting survey in the North Pacific Ocean, and under international programs: International Whaling Commission-Pacific Ocean Whale and Ecosystem Research (IWC-POWER) in the North Pacific. These programs involved mainly sighting surveys for abundance estimates. Additionally, photo-identification (photo-id), biopsy sampling, satellite tagging, oceanographic studies, and marine debris surveys were also conducted during these programs; 2) Collection of biological samples and data from commercial whaling on common minke, Bryde's, and sei whales in Japan's Exclusive Economic Zone (EEZ), as well as from small cetacean fisheries. These samples and data are being analysed in contribution to the stock assessment and management of large and small cetaceans in the western North Pacific; 3) Records and analyses (mainly on population genetic structure) of by-catches and

stranding, including large and small cetaceans; 4) DNA register and molecular monitoring of large whales in the retail market. In 2023, a total of 350 whale market products were sampled. All products matched species and individuals in the ICR DNA database for large whales; 5) Publications. In 2023, a total of 13 peer-reviewed scientific papers on large cetaceans were published. Additionally, 6 peer-reviewed papers on small cetaceans were published in 2022.

Kenji Konishi presented the results of satellite tagging experiments in the Antarctic conducted by the Institute of Cetacean Research (ICR) during 2024. The tagging experiments are designed to respond to questions on the movement and stock structure of baleen whales. Satellite-monitored tags were deployed on four fin whales in the Indian sector of the Antarctic in January and February 2024. The period of transmission varied between 25 and 268 days. Three fin whales showed wide longitudinal movements, and one individual showed a complete migration to low latitude waters west of Australia.

The SC thanked Japan for their contribution and commended the comprehensive research conducted on cetaceans in both the Antarctic and North Pacific. It was also **agreed** that updates on pinniped research would be valuable for future SC meetings.

4.2. WORKING GROUP REPORTS

The reports of two Working Group (WG) meetings held in 2024 were available for review by the SC:

- Working Group on By-catch (NAMMCO/SC/31/05)
- Working Group on Genetics (NAMMCO/SC/31/06)

The draft report of the Working Group on Abundance Estimates, which held a meeting on 21 January 2025, was also made available to the SC (NAMMCO/SC/31/22).

4.3. OTHER REPORTS AND DOCUMENTS

A report of the MINTAG Steering Group (StG), presenting progress made in 2024, was made available as document NAMMCO/SC/31/07. The final report of the NASS 2024 Scientific Planning Committee was presented in document NAMMCO/SC/31/08, which also contained the cruise reports of surveys conducted in the summer of 2024.

A full list of submitted documents can be found in Appendix 3.

5. UPDATES FROM COUNCIL AND MANAGEMENT COMMITTEES

Desportes provided an overview of decisions and recommendations from the Management Committees (Management Committee for Cetaceans, MCC; Management Committee for Seals and Walrus, MCSW; and the Joint meeting of the Management Committees, MCJ) and the Council of direct relevance to the SC.

5.1. UPDATE FROM THE MANAGEMENT COMMITTEES

Narwhal and beluga

The Management Committee for Cetaceans (MCC) was presented with reiterated recommendations from the SC for conservation and management related to sustainable catches and pertaining to narwhal and beluga in East Greenland. A consensus could not be reached on forwarding the following recommendations to Greenland.

Narwhal

- *No catches should be allowed in all three Management Areas.*
- *The next assessment of each Management Area should be conducted in 2026.*

Beluga

- *Zero removals should be allowed, in order to permit the potential establishment of a new population of belugas in East Greenland, and to avoid removing animals that have potentially originated from the small and protected Svalbard stock.*
- *The next assessment should coincide with the next narwhal assessment.*

However, the MCs agreed to forward the following Proposal for Conservation and Management to Greenland, which was commended by the Council.

> i) Acknowledging the serious concern regarding the status of narwhal and beluga in East Greenland, as pointed out in the letter of concern by the Scientific Committee,
>
> ii) recognising the importance of issues related to food security in the remote areas in all Management Areas in East Greenland, and
>
> iii) adhering to the 8 precautionary principles adopted by NAMMCO 30,
>
> the MCC **urges** Greenland to implement a management approach to narwhal and beluga stocks in East Greenland aiming at zero quotas, to ensure the long-term sustainability of these stocks.

Other species

All other recommendations, both for conservation and research, were forwarded to the Parties (Appendix 5).

5.2. UPDATES FROM THE COUNCIL

The long-term assessment plan for harvested species proposed by SC/30 (Table 1), outlining for each species the assessment frequency and next three assessment years, was approved by the Council. However, the Council recommended that narwhal and beluga in East Greenland only be reassessed when more information becomes available for both species.

Greenland had been expecting new advice on walrus, as the existing advice given in 2018 extended only until 2023. Although the SC concluded that the advice from the 2018 assessment would remain valid until a new assessment was carried out, Greenland stated its concern over the postponement of the walrus WG meeting from 2024 to 2026.

Table 1. Frequency of assessment and next three assessment years for species in the NAMMCO region.

Species	Frequency (years)	Assessment year		
Walrus	5	2026	2031	2036
Ringed Seal	5	2029	2034	2039
Bearded Seal	5	2027	2032	2042
Beluga and Narwhal (West Greenland)	5	2025	2030	2035
Narwhal (East Greenland)	3	2026?	+3	+3
Pilot Whale	5	2025	2030	2035
Dolphin	5	2028	2033	2038
Harbour Porpoise	7	2026	2033	2040
Large Whales (Fin and Minke)	7	2025	2032	2039
Harp and Hooded Seals	2	2025	2027	2029
Coastal Seals	6	2026	2032	2038
Killer Whale	9	2028	2037	2046

Two new requests were forwarded to the SC (Appendix 4):

R-3.4.15: To prioritise investigating alternative survey methods and survey frequency for small stocks, with a focus on beluga and narwhal in East Greenland.

R-3.4.16: To prioritise the collection and analysis of information to improve the understanding of stock structure of beluga whales in East Greenland, which may allow future assessments for this species in this area.

The Coastal Seals WG was asked to rank the recommendations provided for harbour and grey seals, because there are too many for the managers in each country to prioritise.

The SC was also requested to follow up on R.1.6.8 introduced by NAMMCO 30 and to define a 'traffic light system' for categorising NAMMCO stocks, which would reflect each stock's abundance, status of knowledge, and levels of removals. The Council considered that it would be helpful both in terms of raising awareness for managers and for public dissemination. The Council underlined that a simple awareness/information tool is looked for, and not a system such as used by the IUCN Red List, which is based on an extinction risk assessment.

5.3. ENDORSED SC WORK PLAN

The Council endorsed the following workplan for the SC for 2024, 2025, and 2026 (Table 2).

Table 2. SC Workplan endorsed by Council 31. Activities in italics were already held at the time of the Council 31 meeting.

2024	2025	2026
WG and WS meetings: - WG on By-Catch (physical) - Genetics WG (hybrid)	**WG and WS meetings:** - Abundance Estimate WG (online & physical) - WG on By-catch (online) - WG on Harp and Hooded Seals (physical) - JWG NAMMCO-JCNB (physical) - Pilot Whale WG (physical) - [Large Whale Assessment WG] might be in 2026 as needs 2024 abundance data	**WG and WS meetings:** - Harbour porpoise WG (physical) - Coastal Seals WG (physical) - Walrus WG - WG on By-catch (online) - Abundance Estimate WG (physical) - [Large Whale Assessment WG]
Other: - NASS 2024 SpC: *physical* and online meetings - NASS 2024 surveys - NASS 2024 SpC: online debriefing meeting - MINTAG StG: *physical* & online meetings - MINTAG: deployment field work and analysis - MINTAG StG: debriefing meeting	**Other:** - MINTAG StG: online & physical meetings - MINTAG: deployment field work and analysis	**Other:** - MINTAG StG: online & physical meetings - MINTAG: deployment field work and analysis

The Council reminded the SC of their recommendation for no more than four in-person WG/WS meetings per year, although noting that for 2025, some of the WG meetings were postponed from 2024. It highlighted that the years 2025 and 2026 are both fully loaded, and the meetings planned for 2025 should be held that year and not postponed to 2026.

The Council noted that the Large Whale Assessment WG may need to be postponed to 2026, depending on the rapidity in getting validated abundance data for large whales following NASS 2024.

The Council reiterated its recommendation to the Parties that the necessary collection of information and analyses should be prioritised and completed on time, e.g., regarding abundance estimates, catch data, life parameters, and stock structure. Reference was specifically made to the pilot whale data (Faroe Islands, Greenland, Iceland) and the analysis of NASS 2024 survey data (all Parties).

Discussion

The SC took note of the updates from Council and Management Committees. A revised short-term work plan was discussed under item 17.

6. WORK PROCEDURES

6.1. RECOMMENDATIONS AND PROPOSALS—CLARIFYING DEFINITIONS

In previous years, there have been issues with the content of recommendations presented to the Management Committees (e.g., recommendations that are purely research guidelines intended for scientists). The Secretariat circulated NAMMCO/SC/31/19 in advance of the meeting, defining categories of recommendations and the bodies to which they are submitted for endorsement.

6.2. DEALING WITH STALLED REQUESTS

Due to time constraints, this item was not discussed, except to point out that, frequently, the reason the SC cannot move forward with a request for stock assessment is due to lack of funding. In some cases, the development and application of alternative survey methods will be useful.

7. INTERACTIONS WITH OTHER ORGANISATIONS

7.1. ASCOBANS

Desportes gave a brief overview of activities in relation to ASCOBANS, including key topics of the 28th Advisory Committee meeting.

Summary

Desportes attended the ASCOBANS' 10th Meeting of the Parties (MOP 10). The direct issue of interest for the SC is the work of the Intersessional Working Group (IWG) on *Lagenorhynchus* species, established by ASCOBANS AC 26 (2021) after the large harvesting in the Faroe Islands of 1423 white sided dolphins. The IWG had not been active until spring 2024, when it was decided that it should provide a status review of white-sided and white-beaked dolphins, and recommendations for these species, to be presented to MOP 10 in September 2024. Desportes and Garagouni were invited to participate in the status review. They provided quite a lot of effort and time and made sure that the review of the NAMMCO SC WG on Dolphins (DWG) and the assessment of both species were well referred to, including the trends in abundance estimates generated by the NASS surveys series. The last review of the report was blocked by members of the IWG, arguing a lack of time before the MOP meeting; the document was therefore not presented at MOP 10.

Danish scientists informed that they were gathering a lot of distribution and abundance data in the North Sea and Danish waters that should be added to the review, but the final analyses would take up to two years. They were developing ways for automated detection and classification of the species, which will feed into distribution models, as well as working to understand where the species are facing threats and looking at the impacts of noise. They were also seeking to bring together experts from neighbouring countries including Scotland, Wales, Iceland, and Norway.

Considering that there were concerns for the species in some areas, it was agreed that the first review will be presented to the ASCOBANS Advisory Committee at the next meeting in September 2025; it would constitute a living document and could be updated later on.

Discussion

The SC noted the information and agreed that the Secretariat keep in contact with ASCOBANS and the IWG to follow what is done in the North Sea and the possible update on abundance and threats. The Secretariat will also communicate with the Danish scientists to forward them the names of the scientists in NAMMCO Countries they could make contact with.

7.2. ARCTIC COUNCIL AND WORKING GROUPS

Desportes briefly described the continued relationship between NAMMCO and the Arctic Council, AMAP, and CAFF (WGs with direct relevance to the SC). The Secretariat keep in contact with the Secretariat of the AC and its WGs. Of direct interest to the SC was the participation of the Secretariat in the first annual meetings of CAFF, AMAP, and PAME after the activity pause due to the Ukraine-Russia conflict. The meetings were mostly status meetings and elaboration of working plans for the coming years. The Secretariat will follow up on the developments in the different AC WGs and the Action Plans finally adopted to see which actions are of relevance to the SC.

To follow up on the request (R.1.5.4, 2017) of the Council to the SC to advise on the best process to investigate the effects of non-hunting related anthropogenic stressors on marine mammal populations, including the cumulative impacts of global warming, by-catch, pollution, and disturbance, any species or assessment WG has the issue as a standing agenda item. However, progress on understanding/predicting the long-term effect effects of contaminants and other human-induced environmental stressors on marine mammal stocks has been limited, primarily due to the absence of relevant expertise within the WGs. The Secretariat will examine with the AMAP Secretariat how AMAP expertise and knowledge can best be brough to the WGs and inform stock review and assessment.

Fernando Ugarte, who is a member of the Steering Group for the CAFF CBMP Marine, informed the SC that, after a period of inactivity, they were permitted to hold a meeting. The network plans to update the State of the Arctic Marine Biodiversity Report, which was last updated in 2017 (although marine mammals were updated in 2021).

The SC was also informed about a four-year project led by CAFF and PAME on marine spatial planning, focusing on higher trophic levels (i.e., marine mammals and birds). Additionally, there will be a meeting addressing the impact of shipping routes on marine mammals, with the goal of overlaying marine mammal distribution data with shipping lane maps.

7.3. ICES

Guðjón Már Sigurðsson reviewed the 2024 activities in ICES which had some relevance to the work of the NAMMCO SC, details of which were provided in NAMMCO/SC/31/21.

Summary

This included work in the ICES Working Group on Marine Mammal Ecology (WGMME), the Working Group on Bycatch of Protected Species (WGBYC) and a new working group on the Joint Cetacean Data Programme (WGJCDP). The ICES Annual Science Conference (ASC) generally includes sessions with marine mammals as an integral part, occasionally also sessions entirely devoted to marine mammals. In 2024, the ASC had a large session on the electronic monitoring of by-catch.

Discussion

Given the simultaneous efforts to assess by-catch in ICES and NAMMCO, the SC **recommended** improving coordination between the two By-catch WGs to share expertise and avoid duplication of work.

7.4. IWC

Sigurðsson briefly summarised the IWC SC meeting that took place in Bled (Slovenia) in April–May 2024.

Summary

A major change in the workings of the committee was introduced, as this was the last annual meeting of the SC—it has now moved to a biannual meeting schedule, with the next SC meeting taking place in April 2026. Due to that change, there were various things within the committee that needed to be adjusted. Of relevance to NAMMCO countries, this includes a new adjusted plan for implementation reviews and a change in the way abundance estimates are approved. Due to this change, a new leadership position was created, Vice-Chair elect, to prepare future chairs and vice-chairs for the position.

Other items of relevance covered during the meeting were related to the Strike limit algorithm (SLAs) for minke whales, fin whales, gray whales, bowhead whales, and humpback whales for the upcoming renewal of quotas for the aboriginal whaling in Greenland, USA, Russia, and St Vincent and the Grenadines. These quota renewals were then passed unanimously during the IWC Council meeting in Lima in September. During a session on small cetacean hunts in Greenland, the SC reiterated its concern regarding the imminent risk of extirpation of three populations of narwhals in East Greenland if catches continue.

A new initiative, the Status of Whales, a website that highlights the status of cetacean populations in the world, was also presented and can be found here: https://iwc.int/about-whales/intro-to-population-status/status-of-whales-graphics.

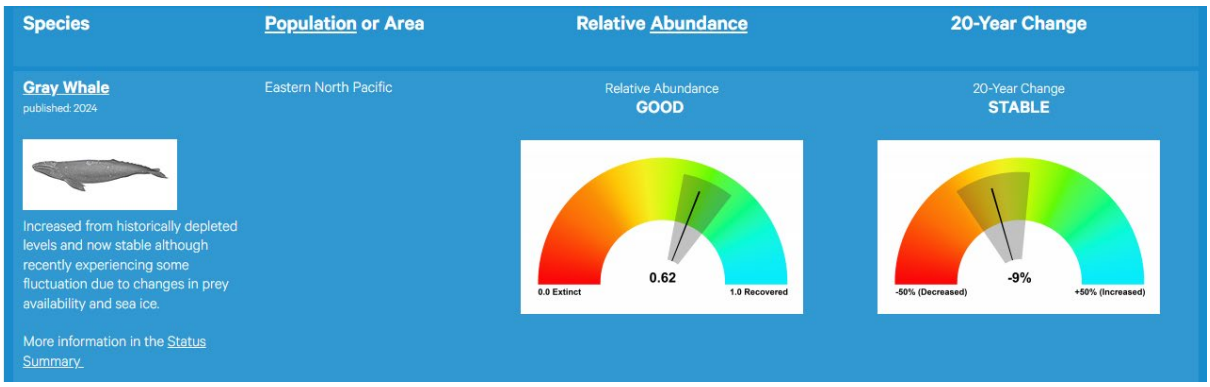

Figure 1. Example from the Status of Whales website, depicting the indicators of gray whale status.

Desportes informed that the Secretariats of the IWC and NAMMCO will have a meeting in February 2025 to discuss cooperation between the two organisations and Secretariat, and in particular the agreement regarding the sharing of information between the two Abundance Estimate WGs and the constitution of a formal list of endorsed abundance estimates for shared stocks.

8. WEBSITE UPDATES

In fulfilment of standing request R-1.8.3 (2022) that the SC *"continue its regular review of these [species] pages"* on the NAMMCO website, draft updates were circulated well in advance of the SC/31 meeting for the following: minke whale, harp seal, hooded seal, and harbour porpoise. Specific members of the SC volunteered to conduct the initial review of the drafts, following which, the SC as a whole will approve them. Frie agreed to lead the review of harbour porpoise, as well as harp and hooded seals (to which John-André Henden had already provided some feedback).

The species pages to be reviewed by SC/32 will be killer, sperm, blue, and sei whales. As usual, the Secretariat will perform a first update before sending them to the SC for review.

In order to maintain consistency and avoid erroneous translations of the common names of NAMMCO species in different languages, the Secretariat asked that SC members each review and update a list of names (NAMMCO/SG/31/13) used in their respective countries. The website will be updated accordingly based on this information.

9. ENVIRONMENTAL/ECOSYSTEM ISSUES

9.1. MARINE MAMMAL / FISHERIES INTERACTIONS

9.1.1. Review and status of active requests (R-1.1.5)

R-1.1.5 (1997, standing) *asks the SC "to periodically review and update available knowledge related to the understanding of interactions between marine mammals and commercially exploited marine resources."*

The Working Group on By-catch (BYCWG) conducts the bulk of this work.

9.1.2. Report of the WG on By-catch

Sigurðsson presented the report of the BYCWG, which met in October 2024 and was chaired by Kimberly Murray (NOAA, USA).

Summary

The Terms of Reference (ToRs) for the BYCWG are i) Identify all fisheries with potential by-catch of marine mammals; ii) Review and evaluate current by-catch estimates for marine mammals in NAMMCO countries; iii) If necessary, provide advice on improved data collection and estimation methods to obtain best estimates of total by-catch over time. The aim of this meeting was to examine the fishing effort data supplied by each of the NAMMCO Parties, following a data call that was sent out in May 2024, to begin evaluating marine mammal exposure to by-catch.

The WG explored the data provided by all four Parties, identifying issues and information gaps that require further clarification. Common attributes amongst datasets were also pinpointed. As the likelihood of marine mammals becoming by-caught depends on gear type, risk scores were assigned to the different fishing métiers, based on existing literature and expert opinion. These risk scores, together with the amount of fishing effort (average number of hauls between 2021 and 2023) taking place per area and gear type, will help the WG prioritise analyses. In conjunction with marine mammal density data, the BYCWG will then be able to flag those areas with highest risk of potential by-catch, i.e., areas with high overlap of high-risk gears and high marine mammal densities. The WG decided to structure future analyses along the following steps:

1. For each métier, group total foreign and domestic fishing effort (number of hauls) recorded in each ICES or NAFO division by quarter and vessel size (large vs small vessels), then average the hauls across the years 2021–2023 (to avoid skewing results from abnormal effort during the COVID-19 pandemic).
2. Map the intensity of fishing effort in each ICES or NAFO division. Gear types known to pose higher entanglement risk for cetaceans and pinnipeds will be examined first, in particular those with high fishing effort based on the previous step. Medium- and low-risk gears with high effort in a given area will be examined next.
3. Source marine mammal distribution data to work toward calculating marine mammal density in each ICES subarea or NAFO division. The initial focus of the WG will be on ten marine mammal species found in NAMMCO waters, selected because they are important to hunters and/or are suspected to be exploited at an unsustainable level. These species are: humpback whale, minke whale, pilot whale, killer whale, white-beaked dolphin, white-sided dolphin, harbour porpoise, harbour seal, grey seal, and hooded seal.

4. Combine fishing effort and marine mammal distribution data to calculate relative risk of exposure.

This approach to quantifying by-catch exposure was drafted and tested using the Icelandic component of the fishing effort data, along with densities of theoretical species inhabiting Icelandic waters in different quarters of the year. An illustration of this method is shown in Figure 2, where the proportion of hauls in each ICES statistical rectangle is calculated for every quarter of the year. Proportional animal density is also generated at the same resolution (assuming the same distribution in every season), and, finally, the relative exposure of the species to this gear type is calculated.

The WG agreed that the most representative mapping of exposure to by-catch risk would be based on marine mammal density estimates, such as predicted habitat use/species distribution models. These detailed data are necessary for the exposure analysis to continue.

In order to improve the analytical approach under development to assess by-catch exposure, the WG recommended that all Parties facilitate access to marine mammal density estimates or abundances within the NAMMCO area, in a format suited to the type of risk mapping described in their report.

Discussion

Sigurðsson clarified that the ideal format for marine mammal distribution data is density surfaces, i.e., number of animals per area unit (ideally per ICES statistical rectangle), but noted that different data types could be adapted for use. For example, the number of seal pups per haul-out site could be used as a proxy for seal abundance. Species distribution models developed in the UK and heavily based on distance from haul-out site as a covariate could be adjusted for seals in different NAMMCO areas. It was noted for Icelandic waters, however, that there is no information on where seals go when they are not hauled out for whelping and moulting. Telemetry studies would provide insights into the areas used at different times of year and thus inform on where by-catch is more likely to occur. In both Norway and Iceland, several tagged seal pups were by-caught in gillnets.

On the subject of seal by-catch, there was a further discussion on identifying seals to species level when they are by-caught. The best method so far appears to be sampling jawbones, which simultaneously provides a method to age the animals. The SC reiterated the recommendation from NAMMCO/SC/28 and SC/30 that fishers collect the lower jaw of seals by-caught in their gear in the coastal reference fleet (CRF) in Norway, and extended it to include Icelandic fisheries, in order to enable species identification.

To the inquiry whether NASS sightings data could be used as a source of cetacean species distribution, there were two issues raised. The first is that those outputs are limited to abundance, not spatially explicit distribution models (with the exception of some work conducted by Ramirez-Martinez (2021) for certain species). The second is that those surveys were limited to summer months and are thus not informative on seasonal distribution. For some species, such as migratory whales, it may be possible to infer relative abundance at different times of year.

The SC approved the method developed by the BYCWG to proceed with by-catch exposure quantification. Further, the SC **endorsed** the recommendation of the WG that the NAMMCO countries facilitate data access, and **added a recommendation** that NAMMCO focus more on generating species distribution models, not just abundance estimates, from survey data. To the WG itself, the **SC recommended** exploring data that can inform on the year-round distribution or relative abundance of marine mammals.

Pursuant to earlier discussions, the SC **reiterated the recommendation** (NAMMCO/SC/30) to "Improve knowledge on by-catches by collecting data on species, genetics, and age by collecting jaws from by-caught seals" in the Norwegian coastal reference fleet and in Icelandic fisheries.

Norway shared that data from Norway's CRF showed only a 54% reduction in harbour porpoise by-catch with use of pingers compared to control nets in 2024. This is much lower than earlier trials

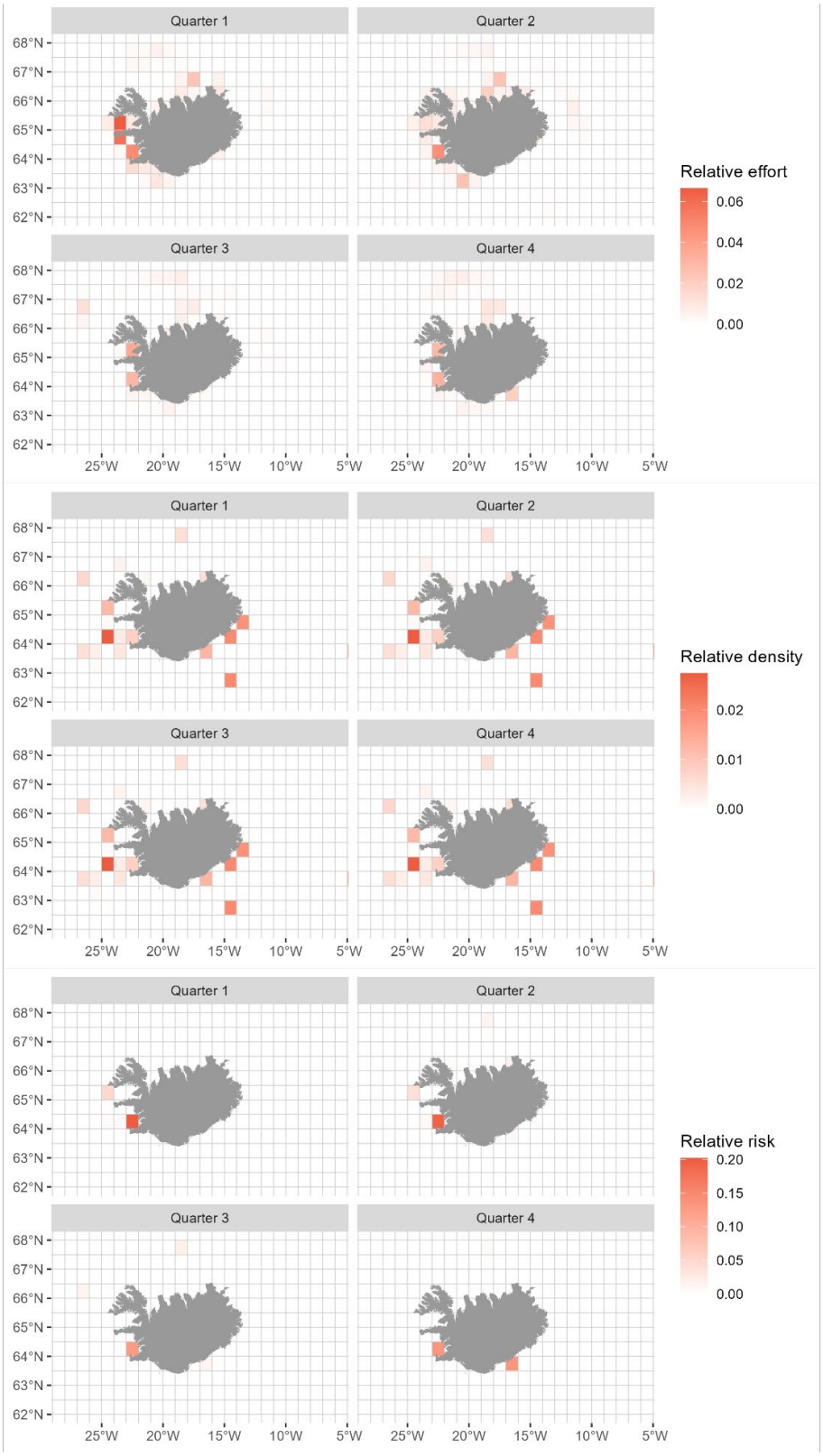

Figure 2. Map of ICES statistical rectangles in Icelandic waters showing: Upper panel: Relative intensity of fishing effort with gillnets targeting demersal fishes in each quarter of the year; Middle panel: Relative density of a hypothetical non-migratory cetacean in Icelandic waters; Lower panel: Relative exposure of individuals of this species to becoming by-caught in gillnets in each quarter of the year.

conducted between 2018 and 2020. The reason for the difference may be due to the negative media coverage and poor reception by fishermen after the pinger mandate came into effect in 2021, which

required vessels fishing in Vestfjord to purchase 10–20 pingers each, amounting to an expense of about NOK 12,000–24,000.

Box 1. Proposals and Research Recommendations from SC/31 relevant to by-catch.

All Parties

- Facilitate access to marine mammal density estimates or abundances within the NAMMCO area, in a format suited to the type of risk mapping described in BYCWG report.
- Focus more effort on generating species distribution models, not just abundance estimates, from NASS data.

Iceland and Norway

- Improve knowledge on by-catches with data on species, genetics, and age, by collecting jaws from by-caught seals.

9.2. MULTI-SPECIES APPROACHES TO MANAGEMENT AND MODELLING

9.2.1. Review and status of active requests (R-1.2.1, R-1.2.2)

R-1.2.1 (2023, ongoing, but not prioritised) *asks the SC "to consider whether multispecies models for management purposes can be established for the North Atlantic ecosystems and whether such models could include the marine mammals compartment. If such models and the required data are not available, then identify the knowledge lacking for such an enterprise to be beneficial to proper scientific management and suggest scientific projects which would be required for obtaining this knowledge."*

The Chair noted that this request is almost as old as NAMMCO itself. Indeed, effort has been poured into various approaches over the years at an institutional level within several NAMMCO countries. Ulf Lindstrøm mentioned that Norway, for example, had set up a process model (Lindstrøm et al., 2008) and recently tried to update it but could not include information on harp seals, and as such, the work stalled. He then presented NAMMCO/SC/31/FI24, an overview of a food web model for the Norwegian and Barents Seas.

Summary

The modelling framework and results of a recently published paper, titled "A food-web assessment model for marine mammals (minke whales, toothed whales, other baleen whales and seals), fish, and fisheries in the Norwegian and Barents Seas" (Planque et al., 2024), was presented. The purpose of the work was to develop a food-web model of intermediate complexity and perform a quantitative assessment of the Norwegian and Barents Sea ecosystems in the period 1988–2021 in a manner that is consistent with existing data and expert knowledge, and that is internally coherent. For this purpose, the modelling framework of chance and necessity (CaN) was applied. The model construction followed an iterative process that allows to confront, discuss, and resolve multiple issues as well as to recognise uncertainties in expert knowledge, data, and input parameters. The study shows that it is possible to reconstruct the past dynamics of the food-web only if recognising that some data and assumptions are more uncertain than originally thought. According to this assessment, consumption by commercial fish and catch by fisheries jointly increased until the early 2010s, after which consumption by fish declined and catches by fisheries stabilised. On an annual basis, fish have consumed an average of 135.5 million tonnes of resources (including 9.5 million tonnes of fish), while marine mammals have consumed an average of 22 million tonnes, of which 50 % (11 million tonnes) were fish. Fisheries and hunting have captured an average of 4.4 million tonnes of fish and 7 thousand tonnes of marine mammals.

Presently we are analysing the causal effect in the above food-web, e.g. marine mammals effect on the fisheries, using the biomass time series generated by the food-web model and fitting structural equation models to these time series. Also, we have started to set up the model for future food-web

simulations where the goal is to identify pathways that can lead to successful management in terms of conservation and exploitation for the joint populations of marine mammals in the Norwegian and Barents Sea.

Discussion

There was extensive discussion on the advantages and uncertainties inherent in this type of mass balance modelling, such as: the reliability of life history traits/first principles incorporated as model constraints versus actual field observations thereof; the exclusion of functional relationships from the model and thus the mitigation of the chaos resulting from the very narrow margin for error in specifying such parameters; the fact that, if a major real-life ecosystem relationship is left out of the model, it may wildly miscalculate all estimates in an effort to solve itself based on the parameters it was given, and ways to directly allow for such uncertainty.

The Chair inquired to what extent such models are useful for management decisions. Thus far, Lindstrøm confirmed interest from Norwegian fisheries and the ICES WG on integrated assessments of the Norwegian Sea (WGINOR). There is ongoing effort to adjust the model to focus more on impacts on marine mammals and coastal species, with the potential to be used in future assessments and compliance checks with harvest rules. This type of model requires people with different areas of expertise to work together extensively, and is a useful tool for describing data-rich ecosystems, to understand what the energy fluxes and interactions are within them. It can also be used to reconstruct past dynamics and, from them, project plausible future scenarios.

Sigurðsson mentioned ongoing efforts to publish an Ecopath-Ecosim food web model for Icelandic waters (NAMMCO/SC/31/FI26) and suggested that the authors could present their work at SC/32. Lindstrøm mentioned work by other Norwegian research teams that could also be presented. This sparked interest in holding a dedicated workshop or special session around the next SC meeting, which could be extended beyond food web modelling to include ecological models for marine mammals. Lindstrøm, Sigurðsson, and Lars Witting agreed to take the lead on organising a "status workshop" to establish what work is being conducted in each country and determine next steps.

9.3. ENVIRONMENTAL ISSUES

Desportes brought up the topic of pollution as an anthropogenic stressor that is not dealt with extensively within NAMMCO. The SC itself has no expertise in this area and, currently, the primary way pollutants are incorporated in stock assessments is by their implicit effect on life history and demographic traits, as included in population models. Request R-1.5.4, to consider anthropogenic impacts on marine mammals beyond removals, was considered sufficiently answered by the MCJ (NAMMCO, 2023b) with the inclusion of a standard agenda item in all WG assessments. The formation of a dedicated, technical WG comprised of experts outside the SC, similar to the WG on Genetics, was proposed, as was the inclusion of such experts directly in the SC delegations. While the impacts of certain pollutants on the reproductive and immune systems of several species have been documented in some species relevant to NAMMCO, there was no immediate consensus on the weight this topic should be given in WGs. It was finally **agreed** that, when preparing for stock assessments, the species-specific reviews from AMAP should be considered and relevant experts invited if needed.

10. WORKING GROUP ON GENETICS

Morten Tange Olsen (Globe Institute, Denmark), Chair of the WG on Genetics, presented the report of that WG's first meeting in October 2024 (NAMMCO/SC/31/06).

Summary

The ToRs of the WG are i) To review the genetic data that will be used in NAMMCO's species assessments; ii) To serve as a consultation body on topics related to genetics for NAMMCO's working groups; iii) To detect data and knowledge gaps needed for the assessment of specific species/stocks

and provide NAMMCO with advice on how to move forward to fill such gaps. At its 30th meeting, the NAMMCO Scientific Committee prioritised the following tasks for this WG:

- **Pilot whales**: examination of the genetic connectivity between different hunting areas (East Greenland, West Greenland, Faroe Islands, Iceland), as well as population structure (if any) across the North Atlantic.
- **Narwhals**: examination of the genetic discreteness of putative small stocks in East Greenland, as well as population structure between Canada and Greenland.
- **Belugas**: further examination of the genetic provenance of the animals occurring in East Greenland; examination of the genetic relationship between the West Greenland winter harvest and the Southeast Baffin Island population; examination of stock structure of belugas in the High Arctic, namely those wintering in North Water, those available to the hunt in Northwest Greenland (Qaanaaq), and those available to the fall and winter hunt in West Greenland.

The WG examined existing literature and ongoing studies pertaining to the questions above, as well as to species that will undergo stock assessments in the next two years. Recommendations were formulated for the relevant assessment WGs for each of the species discussed, which will help fill in knowledge gaps on these topics and allow for robust stock assessments in the near future. These are listed under the respective species items in this report.

Finally, a draft of recommendations for genetic data collection and analysis methods was initiated (to be completed intersessionally by the WG), which will help establish standardised protocols across NAMMCO countries.

Pilot whale

There is genetic evidence of a north-south differentiation of pilot whales in the eastern North Atlantic, with potentially distinct genetic clusters in the Faroe Islands, the UK and Ireland, and the Bay of Biscay/Iberian Peninsula, and a possible contact zone across UK and Irish waters. Pilot whales in the Mediterranean Sea form a separate genetic cluster. In the western North Atlantic, there appears to be a genetic link between Greenland and Canada, although more samples are required to confirm this. It is unclear whether these patterns are a result of geographic separation, isolation-by-distance, or skewed sampling of related individuals during stranding and hunting events.

Narwhal

Recent investigations into the genetic structuring of narwhals show evidence of at least three genetic clusters in Arctic Canada, namely, a northern and southern cluster in the High Arctic, and another cluster in Naujaat Bay. This structure is further supported by these animals' migration patterns, as described in the Global Review of Monodontids.

Fine-scale genetic structure of narwhals harvested in East Greenland shows clear differentiation between the spring and summer hunt in Scoresby Sound (Management Area 1), as well as weaker differentiation of the animals hunted in Tasiilaq (Management Area 3). There is no robust genetic evidence that the animals harvested around Kangerlussuaq (Management Area 2) form a distinct cluster.

Beluga

Genetic clustering of belugas harvested in East Greenland in recent years (2017–2023) indicates that they originated from at least two geographically distant stocks, the Beaufort Sea and the Kara Sea. A single individual potentially originated from Svalbard, but this link should be further investigated.

Ongoing range-wide genetic studies of belugas indicate some potential differentiation between Cumberland Sound and Qeqertarsuaq. Moreover, belugas harvested in Grise Fiord originated from two distinct stocks, Cunningham Inlet and Qeqertarsuaq, with a single individual likely originating from Repulse Bay. There are also slight indications of genetic differentiation between Qaanaaq belugas and Cunningham Inlet belugas.

White-beaked and white-sided dolphins

There is strong genetic evidence of at least three distinct populations of white-beaked dolphins in the North Atlantic: one in the western North Atlantic (Canada and USA), one in the eastern North Atlantic (Barents Sea, western Svalbard, and Iceland), and one in more southern regions (North Sea, Britain, and Ireland). There is possibly a fourth genetic cluster in the southern North Sea (Germany and Denmark).

In contrast, Atlantic white-sided dolphins show no population structure across the central and eastern North Atlantic. A higher sample size is needed from the western North Atlantic in order to draw robust conclusions about east-west connectivity of this species.

Harbour porpoise

Genetic studies have so far not identified genetic differences across the North Atlantic from the USA and Canada to northern Norway. Smaller, localised genetic clusters, however, exist in West Greenland, Mauritania, the Iberian Peninsula, and the Black Sea, with still more clusters potentially existing in other parts of Europe and the Arctic. Ongoing analyses will shed further light on this in the near future.

Harbour and grey seals

Harbour seals exhibit high site fidelity, with multiple small, extremely localised genetic clusters confirmed along coastlines on both sides of the Atlantic. This could have serious implications for management, with regards to local extirpations of harbour seals. Further analyses should include more samples from Canada, East Greenland, and the Barents Sea.

Grey seals, in contrast, show greater mobility and several large and small genetic clusters have been identified in the eastern North Atlantic, as well as a large one in the western North Atlantic. There is currently very little genetic information regarding grey seals in Greenland, the Faroe Islands, and northern Norway.

Walrus

Existing studies have identified at least six genetic clusters of walrus across the North Atlantic, as well as two extinct populations in Iceland and the Canadian Maritimes. Ongoing whole-genome sequencing research across their entire range will shed light on precise population boundaries and substructure.

Discussion

In light of the planned stock assessment by the PWWG in November 2025, Desportes asked whether the information presented on pilot whales will be sufficient to base an assessment on. Tange Olsen responded that the current information alone is not enough to conclude anything about stock structure within the Atlantic, with the exception of the Mediterranean Sea pilot whales being indubitably genetically distinct. However, the DolphinUnit project will begin processing samples in February and, therefore, preliminary results regarding stock structure should be available in time for the PWWG meeting. It would be useful for the WG on Genetics to review these results prior to the PWWG meeting and advise on how to interpret the information. It was noted that understanding the effects of removing family units during hunts is not critical for this PWWG assessment, but of interest for management in general.

The SC asked for clarifications regarding the high mutational load in narwhals in Southeast Greenland (SEG). Tange Olsen clarified that the accumulation of deleterious mutations is common in small stocks, but does not provide an indication of how long the stock has been small in size. At the resolution of the current genetic analyses, it is only possible to confirm the divergence of SEG narwhals from others within the last 10,000 years. Mads Peter Heide-Jørgensen observed, and Tange Olsen agreed, that higher coverage samples from Canada can be used to differentiate between stocks on a finer timescale, and that both previous Canadian literature and new data from the University of Groningen could provide a better overview of the situation. In contrast, increasing the coverage of the samples from East Greenland is likely to merely confirm already clearly visible patterns; therefore, resequencing

them to generate more data should not be a priority. At best, that would remove any doubts about certain samples currently interpreted to be duplicates from the same individuals, which could perhaps instead be closely related.

Regarding the Northeast Greenland/Svalbard (NEG/Sv) stock, its current size is unknown, but Christian Lydersen confirmed that acoustic monitoring around Svalbard indicates high numbers. He also noted that the Svalbard animals were never an important hunting target, as they occurred deeper into the ice than where the old hunters could reach. The genetic analyses do not confirm with absolute certainty that the animals hunted in Scoresby Sound in spring are from the NEG/Sv stock, only that they are genetically identical. Regardless, even if this is the same genetic stock, that should not be interpreted as all the animals from Northeast Greenland and Svalbard being available for the spring hunt in Scoresby Sound.

Regarding belugas, neither aerial surveys nor tracking studies have ever indicated movement of belugas between Canada and West Greenland, or from Svalbard to East Greenland. The genetic links identified between those areas should not, therefore, be the sole basis for managing stocks.Regarding harbour seals, some doubts were expressed concerning the lack of genetic differentiation along a large part of the Norwegian coastline. More detailed information from Norwegian samples should confirm whether there are multiple small stocks in that area or not.

The SC was impressed by the amount of work achieved by the WG on Genetics in such a short meeting and thanked the WG and WG Chair for their contributions.

11. SEALS & WALRUS STOCKS – STATUS AND ADVICE TO THE COUNCIL

11.1. BEARDED SEAL

11.1.1. Review and status of active requests (R-2.7.1)

R-2.7.1 (Rephrased 2024, Ongoing) *asks the SC "to complete its review and assessment of bearded seals when the necessary data become available, and collect and analyse existing information."*

The SC provided a response to this request under item 11.1.2.

11.1.2. UPDATES

Heide-Jørgensen informed the SC that data on bearded seal abundance and catches are now available for Greenland and presented NAMMCO/SC/31/14.

Summary

Two aerial survey time series provide insights into the abundance of bearded seals on ice in West Greenland during winter months. Double-platform surveys conducted in 2006, 2008, 2012, and 2022 over eastern Baffin Bay used Mark-Recapture Distance Sampling methods to correct for perception bias. Single-platform surveys from 1981, 1982, 1990, 1991, 1993, 1994, 1998, and 1999 utilised varying strip-width approaches, offering a relative abundance index across five strata along West Greenland. This time series can be extended through 2022 by including only front observer data.

The abundance of bearded seals, adjusted for perception bias, ranged from 1,900 to 2,700 between 2006 and 2012. A high estimate of 5,700 in 2022, however, had a significant perception bias (0.15) and high variance (CV = 0.77), raising uncertainties about observer effects. While no winter data exist to adjust for availability bias in West Greenland, studies from Svalbard and Melville Bay suggest only a small fraction of the population is detectable on ice during surveys.

The time series indicates stable relative abundance until ~2000, followed by an increase to a plateau.

Rosing-Asvid summarised a new paper on bearded seal genetics, which indicates separate populations in Okhotsk, Pacific, Northwest Atlantic, Melville Bay, and the Northeast Atlantic (NAMMCO/SC/31/FI27).

Discussion

The bearded seal abundance data in Greenland shows that the current situation is not a major concern, due to low catch levels and their relatively high abundance. The Secretariat reminded the group that NAMMCO's principle is to assess any species being hunted, regardless of whether hunting levels appear to be low or decreasing.

In relation to the observed decrease in bearded seals in the 2013 data, Frie noted that a similar trend was observed in several seal species across the Arctic since 2007. This coincided with an increased influx of Atlantic water into the fjords and a significant discharge of Arctic water ice around the same time.

Genetic evidence (NAMMCO/SC/31/FI27) suggests that West Greenlandic and East Canadian bearded seals are related. Tracking these animals would help determine if they belong to the same stock. Rosing-Asvid informed that he had reached out to the Department of Fisheries and Oceans (Canada) to explore collaboration on such a tagging effort, which could also provide valuable data on haul-out sites in the area. For the tagging to proceed in Canada, local community involvement and approval would be required. The SC stressed that these data are necessary to be able to conduct a full assessment of bearded seals. The SC therefore **recommended** that Canada and Greenland investigate bearded seal movements between West Greenland and Canada to determine if there is a shared stock.

The SC also discussed the need to correct abundance estimates for availability bias. Lydersen informed the SC that, contrary to the general assumption that bearded seals spend significant time hauled out, his findings (NAMMCO/SC/31/FI30) indicate that they spend approximately 95% of their time in the water. This would imply that current abundance estimates require a substantial correction for availability.

In response to R-2.7.1, the SC commented that, while a preliminary assessment in Greenland indicates that the seal numbers are large and there are no immediate concerns, the lack of comprehensive data prevents a full assessment. Therefore, the SC **agreed** that a full assessment be conducted once all the necessary data are available.

In the absence of clarification of the stock delineations, it would be possible to conduct partial assessments for West Greenland, Melville Bay, and the North Water Polynya. Acknowledging the present lack of abundance estimates for Melville Bay and the North Water Polynya, the SC **recommended** that Greenland analyse previous surveys conducted in these two areas to provide estimates of bearded seal abundance.

The SC will revisit the status of knowledge on bearded seals in 2026.

Box 2. Research Recommendations from SC/31 relevant to bearded seals.

Greenland and Canada

- Investigate bearded seal movements between West Greenland and Canada to determine if there is a shared stock between the two areas.

Greenland

- Analyse previous surveys conducted in Melville Bay and the North Water Polynya to provide estimates of bearded seal abundance.

11.2. RINGED SEAL

11.2.1. Review and status of active requests (R-2.3.3)

R-2.3.3 (Rephrased 2024, Ongoing) *asks the SC "to complete its review and assessment of ringed seals when the necessary data become available, and collect and analyse existing information."*

The SC provided a response to this request under item 11.2.2.

11.2.2. Updates

The Ilulissat Icefjord survey, which was initially planned for 2024 to survey the Kangia ringed seal ecotype, had to be postponed due to financial constraints. At the time of the meeting, the Greenlandic delegation informed that the survey was tentatively planned for May 2025, pending approval from the GINR board. Rosing-Asvid informed that in Canada, some abundance monitoring of ringed seals has been halted due to significant uncertainties around the results.

Given the extensive distribution of ringed seals across Greenland, Rosing-Asvid speculated that there are likely more isolated ecotypes in other isolated fjords, similar to the one found in Ilulissat. If this is confirmed, the goal should be to manage these fjord systems separately. Analysing the configuration of the fjords to assess which ones are more likely to contain a distinct ecotype was suggested. Genetic samples should then be collected from various fjord systems to determine stock structure. The SC therefore **recommended** determining whether there are isolated stocks in different fjord systems.

The SC acknowledged the logistic difficulty of obtaining an abundance estimate for ringed seals considering their extensive distribution, but highlighted that it is a species of concern, in light of rapid environmental changes. Lydersen reported that in Svalbard, monitoring is still ongoing through drone surveys, with efforts to produce a time-series analysis comparing abundance in areas with and without hunts. The hunt in Isfjorden is small, and there have been requests to conduct a small-scale assessment for it.

Box 3. Research Recommendation from SC/31 relevant to ringed seals.

Greenland

- Determine whether there are isolated ringed seal stocks in different fjord systems.

11.3. HARBOUR AND GREY SEALS

11.3.1. Recommendations from the Working Group on Genetics

The WG on Genetics (see Item 10) recommended:

- Sampling more harbour seals in Greenland to further investigate putative signals of genetic substructure. This could include analysis of archival samples, in addition to opportunistic sampling of by-caught individuals.
- Sampling grey seals from the Faroe Islands to determine if they are a unique population or a part of a larger population in Scotland and/or southeast Iceland

The SC agreed to forward the recommendations to the Coastal Seals WG (CSWG), acknowledging that it will likely be a complex and lengthy task. The SC also discussed the potential utilisation of tools such as eDNA, the use of which has made significant progress in recent years and has shown promising results when sampled near whales (e.g., the eWhale project).

Bjarni Mikkelsen informed that the Faroe Islands are planning to have the grey seal biopsy samples they have collected over time analysed.

11.3.2. Updates

Grey seals

Sandra Granquist presented Icelandic updates on grey seals (NAMMCO/SC/31/FI14).

Summary

A new population estimate of grey seals in Iceland, based on an aerial survey carried out in 2022, was presented. Censuses of the Icelandic grey seal population have been conducted regularly since 1982 and the population size is estimated based on pup production. From the year 2005, pups are counted through aerial surveys three to five times during the pupping period (from the end of September to the beginning of November) in all known grey seal pupping areas. Prior to that, areas were counted once and correction factors applied. In the most recent census, conducted in 2022, the total pup production was estimated to be 1,551 pups (95% CI= 1,486-1,613), which yielded a total population size of 6,697 animals (95% CI = 5576-7841). The population in 2022 was approximately 27% smaller than when the first census was conducted in 1982 and corresponds to an increase of 6.8% since the census in 2017. However, trend analysis for the period 2005–2022 revealed no statistically significant trend for the total population size.

According to the Icelandic Red List for threatened populations, which is based on criteria put forward by IUCN, the grey seal population is defined as "Vulnerable", due to the observed decline over three generations. However, the grey seal population size is above the governmental management objective (4,100 animals). The management objective will be re-evaluated as part of work aimed to establish a formal evidence-based management plan for both grey seals and harbour seals, building on research results and modelling of biological data. Further, it is imperative to increase knowledge on seasonal patterns in grey and harbour seal abundance at sea and in haul-out sites to facilitate sustainable management.

Kjell Tormond Nilssen presented Norwegian updates on grey seals.

Summary

Grey seal pup production was estimated in the counties Troms and Finnmark in November–December 2021. There was a 25% reduction of pups born in Troms from 2016 to in 2021. Grey seal pup production in Finnmark increased by about 10% from 206 pups in 2015 to 226 pups in 2021. In 2022, 37 grey seal pups were born in Rogaland County. Pup counts were carried out in the counties Trøndelag and Nordland in October/November 2023–2024. In Trøndelag, pup production has reduced from 272 pups in 2007-2008 to 83 pups in 2023. Also, pup production along the mainland coast in Nordland was reduced from 487 pups in 2007–2008 to 119 pups in 2023. In Lofoten (Nordland), pup production was reduced from 122 pups in 2020 to 87 pups in 2024. A total production of 600 grey seal pups in Norway was estimated in 2021–2024, which was 50% of the politically decided target level of 1,200 pups. It should be noted that no catch quotas on grey seals have been given in the counties Møre og Romsdal, Trøndelag, and Nordland in the period 2016–2024. Using multipliers of 4.0–4.7 between pup production and total population suggests a total population of about 2,400–2,800 grey seals (1+ animals) in Norway.

Natural mortality, such as predation by killer whales, could contribute to this population decline. Another factor may be mortality due to incidental by-catch of grey seals in gillnet fisheries. The extent of this by-catch and its distribution in time and space are currently highly uncertain, because of uncertainties in the available by-catch data in the relevant fisheries, i.e. by-catch data collected by Norway's reference fleet. The two main causes of uncertainty are 1) uncertain species identification and 2) missed animals/dropouts—seals that fall out of the nets as they emerge from the water, without being registered by the fishers. The IMR plans to start addressing these issues in 2025 by equipping 2–7 vessels with an electronic monitoring system. This system can be used to check and validate species IDs and may detect animals that would otherwise be missed by the fishers. Validating species IDs and estimating dropout rates are expected to improve grey seal by-catch estimates.

Discussion

Mikkelsen provided updates on the work being done in the Faroe Islands with grey seals. Five grey seals have been tagged recently, and the data will be analysed to identify patterns of presence and

absence along the shoreline, where seals are counted during summer, to generate corrections for the seals absent during counts. It will not be possible to conduct traditional pup counts for abundance estimation due to challenging logistics.

Granquist's presentation highlighted the challenges of changing the methodology from using crewed aircrafts (e.g. Cessna airplanes) to using drones when surveying costal seal populations in Iceland (e.g., high cost, weather issues, time and expertise needed). The SC recognised the difficulties of implementing this new method for grey seal surveys. Given recent technological advancements and the emergence of new tools, SC members mentioned that the AEWG had discussed the idea of a workshop on alternatives to dedicated cetacean surveys for estimating abundance (see item 13.2.). The SC **agreed** that a similar discussion should be held for pinnipeds. This should be taken up by the CSWG at its next meeting.

The SC expressed concern about the declining trends observed in grey seal populations across Norway. While the causes for this decline may be varied, the primary factor is thought to be by-catch in gillnets and, potentially, predation by killer whales. Although by-catch reporting is mandatory in Norway, accurate species identification remains a significant challenge. The SC therefore **reiterated the recommendation** also given under Item 9, that the coastal reference fleet in Norway, as well as Icelandic fishers, collect the jaws of by-caught seals to allow a reliable species identification.

The SC briefly discussed the current use of pingers to deter seals from fishing boats. However, there are very few studies on the long-term effects of pingers on animals, raising concerns that these devices might drive animals away and exclude them from their natural habitats. Conversely, several studies have indicated a "dinner bell" effect, whereby the seals rapidly become accustomed to the pinger noise and either ignore it or take it as an indication that there is food available. Meanwhile, the targeted acoustic startle response device has shown to be highly effective at deterring seals, particularly around fish farms in Scotland.

Harbour seals

Nilssen presented Norwegian updates on harbour seals.

Summary

Harbour seal assessments have been conducted along the Norwegian coast in 1996–1999, 2003–2006, 2008–2015 and 2016–2021. Norwegian authorities decided in 2010 that 7,000 harbour seals should be the target level (TL), which was the mean abundance of the assessment in 1996–1999 and 2003–2006. Catch quotas should be used to keep the seal abundance around the TL. The counting method in 1996–2015 was mainly based on seals counted in photos from aerial surveys. Since 2016, counts based on drone photos, where the drone is operated from a boat, have been the main method.

In Norwegian Skagerrak, the abundance was 300-400 seals between 1996 and 2006. The numbers increased to about 800 seals in 2016. In 2022, the total abundance had increased to c.1,600 seals in that area. The large increase in seal numbers is probably due to both population growth and migrations from the Swedish Skagerrak, where harbour seal abundance is decreasing. Tagging experiments in Vestfold and Telemark showed harbour seal migrations between the Norwegian and Swedish Skagerrak. On the Norwegian west coast, harbour seal abundance in Rogaland County was slightly below TL of 480 seals in the period 2003–2016, but had increased to above TL in 2023. In Vestland County, harbour seal abundance was at a low level in 2003–2015, but increased to approximately 600 seals in 2022, which was 13% below TL. In Møre og Romsdal, harbour seal abundance increased from a low level in 2003–2006 to 820 seals in 2024, about 18% below TL. In Trøndelag, harbour seal abundance was at a high level in 2003–2006, when approximately 1,660 seals were counted. In 2008–2015, this abundance was reduced to ~730 seals. The abundance increased to ~1,200 seals in 2024, which was ~12 % below the TL. In Nordland, harbour seal abundance decreased by 37% from 2012 to 2020, which was 23% below TL. In Troms, the numbers increased from ~560 in 1996-–1999 to 990 seals in 2013. However, they were reduced to 760 seals in 2020. In Finnmark, harbour seal abundance

increased by 14% from 2008–2015 to 1,120 seals in 2021. The total harbour seal abundance was close to the Target Level of 7,000 seals in Norway in 2016–2021.

It has been estimated that around 555 harbour seals get entangled and drown in gillnets every year in Norway. Most of these bycatch events occur in large-mesh gillnet fisheries targeting cod and monkfish. Young-of-the-year individuals represent the largest proportion of by-caught harbour seals.

Sigurðsson presented data on Icelandic harbour seal by-catch (NAMMCO/SC/31/FI32).

Summary

By-catch in the lumpsucker fishery was reassessed using data from 2020–2023, with the same methodology as was used in the SC approved estimates from 2019. The estimates were based on information from onboard inspectors from approximately 5% of all trips during that period. Estimated marine mammal by-catch appears much lower now, with 800 animals compared to 3,200 animals in 2019. Thereof, harbour seal was the most commonly caught marine mammal, followed by grey seal and harbour porpoise, as in 2019. No harp, ringed, or bearded seals were observed during this time, although some were caught in the earlier period. This change is partly due to changes in fishing effort, with effort being considerably lower (22–56%) in all but two management areas, but also due to lower actual by-catch rates of the marine mammals.

Discussion

Rosing-Asvid reported that Greenland has three very small aggregations of harbour seal in Western Greenland, all of which were hunted to near extirpation before their hunting was banned in 2010. Two of these aggregations show clear signs of recovery, whereas the third (Kangerlussuaq), still is on the brink of extinction.

Nilssen provided an update from Norway, noting that the total population has remained stable at around 7,000 harbour seals over time. The most recent assessment revealed a population increase in southern Norway, likely due to migration into the area.

Lydersen shared that a survey of Svalbard is planned for this year, with the last survey conducted approximately 15 years ago. In Svalbard, harbour seals appear to be thriving and expanding their distributional area in the later years with the influx of warmer Atlantic water masses and less sea ice, in contrast to bearded and ringed seals on the west coast of Svalbard, which face significant challenges.

Granquist informed that a partial harbour seal abundance survey is planned to be conducted in 2025.

11.3.3. Plans for WG in 2026

Iceland informed the group that a new abundance estimate for grey seals based on a count from 2022 is available, although there will be no new complete population estimate for harbour seals since the last CSWG in 2023. Norway will have all the necessary data for grey seals by next year, but the data from the latest survey of harbour seals will likely not be completed in time.

Due to the dramatic decline in coastal seal populations in Norway, and despite the fact that some areas, such as Troms and Finmark, are yet to be surveyed (scheduled for autumn 2026), the SC **agreed** that the urgency of the situation required the WG to proceed as planned in 2026.

11.4. HARP AND HOODED SEALS

11.4.1. Review and status of active requests (R-2.1.9)

R-2.1.9 (2022, Ongoing) *ask the SC to investigate possible reasons for the apparent decline of Greenland Sea stock of hooded seals and assess the status of the stock.*

Henden informed that both before, during, and after the Benchmark Workshop for Harp and Hooded seals in 2023, the group had assessed a suite of environmental variables regarding their ability to

explain the apparent decline in the West Ice hooded seal stock, such as timeseries of redfish, halibut, cod, herring, and capelin from Iceland and the Greenland Sea and cod and capelin from the Barents Sea. These were sequentially assessed as drivers of the different vital rates/compartments in the model (ICES, 2023). During this work, the Benchmark did not find any of those drivers to contribute to their understanding of the reasons for the decline of this stock.

11.4.2. Updates

Harp seals

Henden presented Norway's updates on harp seals (ICES, 2023).

Summary

Of the harvest quota of 7,397 harp seals of all ages set for the West Ice in 2024, only 2,069 seals were taken. Of those there were 1,533 pups and 536 adults. The quota for 2025 includes, as decided by the WGHARP in 2023, a carry-over component that means that the part of the 2024 quota that was not taken last year is added to the 2025 quota. This means that the harvest quota for harp seals in the West Ice for 2025 is 1,2575 (7,397 + 5,328) individuals of all ages. There was no harvest of hooded seals.

It is also important to note that during the Joint Norwegian Russian Fisheries Commission meeting in October 2024, Russia officially stopped the scientific collaboration with Norway over the harp seal stock in the East Ice. How this will manifest itself in practical terms is difficult to say for the time being.

Since the population models for the three stocks have all been retired as assessment models, the focus is now on alternative ways of estimating population size, the basis for advice in management, and understanding the species' ecological role in the ecosystem. Thus, in 2025 the group will start the development of a close-kin mark-recapture (CKMR) model based on genetic samples taken during the commercial harvest of harp seals in the West Ice. As CKMR models may benefit from precise determination of age, we will also try to develop the basis for an epigenetic clock. That may, if it works, enable us to estimate age from tissue, such that we do not depend on only pups (i.e. known age) or harvested individuals and age-reading from teeth. Hence, in the future we could take biopsies from live animals during the breeding season as the basis for resampling the population.

Discussion

Frie expressed scepticism about the precision of the epigenetic clock method for investigating age and maturity. However, she remains optimistic that the method can be refined in the coming years.

Haug reported that collaboration with individual Russian scientists on fisheries management and monitoring in the Barents Sea is ongoing. The next meeting of the bilateral group on fisheries is scheduled for March 2025, and there may be an opportunity to establish a similar Norwegian–Russian bilateral group focused on seals. Such a group could help gather the missing data needed to assess harp and hooded seal populations. Some SC members noted that Russian scientists conducted a drone survey in the White Sea in 2024, sharing the abundance estimate but not the methods used for obtaining it. Access to the raw data would be invaluable for inclusion in the next WGHARP.

Frie informed the SC that work on harp seal genetics is resuming, with samples being collected from the East Ice, West Ice, and Greenland.

Hooded seals

Henden reiterated the issues with the current model for estimating hooded seal abundance, including challenges with scaling up from pup estimates to population size and with selectivity bias in catch-at-age data as limitations to our ability to document and understand the reasons for the likely decline in hooded seals in the West Ice. Hence, although the reasons for this decline were investigated, Henden emphasised that insufficient data prevents drawing definitive conclusions. Frie suggested examining

biological parameters that point to changes in prey availability and distribution. However, Henden noted that these factors were tested in the models and do not explain the observed decline.

To address the limitations of the models, Norway is exploring alternative methods (as outlined above), prioritising harp seals due to their status as a hunted species. If successful, these methods will be applied to hooded seals.

For hooded seals, increased predation may partially explain the population decrease. Both hunters and scientists have reported increased predation of hooded seal pups by polar bears and Greenland sharks in key habitats, such as the West Ice. However, the SC is not aware of monitoring series of this that could be assessed in relation to the decline.

A new estimate on hooded seal abundance in the west Atlantic based on data from surveys from 2012 and 2017 was mentioned. It shows a major decline from 2005 to 2012 and to 2017 of 38% and 36%, respectively. This shows that hooded seals in the west Atlantic also have had some unexplained mortality.

The SC **recommended** that request R-2.1.9 be added as a ToR for the next WGHARP meeting.

11.4.3. Plans for next WGHARP

At the time being, it seems to be a common understanding that the planned WGHARP in 2025 is postponed due to the issues with the current models and a lack of new data. In light of this and the fact that there is no request for advice from Norway, the decision was left to the co-Chairs from NAMMCO and ICES. Henden expressed hope in the currently explored alternative methods like genetic mark-recapture modelling and the epigenetic clock, which may help resolve the modelling issue and allow for an assessment in the coming few years. The location of the next WGHARP meeting is planned to be at St. Andrews University (Scotland, UK).

11.5. WALRUS

11.5.1. Updates

Lydersen shared that tusk-mounted GPS loggers have been used to track walruses, with the longest track recorded being 6 years (NAMMCO/SC/31/FI33). He also mentioned plans for a new walrus aerial survey in 2025 in Svalbard and highlighted a 2024 publication comparing walrus counts from drones versus satellite images (NAMMCO/SC/31/FI34).

Heide-Jørgensen provided an update on ongoing work with hunters in Greenland, who are tagging walruses with harpoon tags. Due to sea ice conditions this year, only three tags were successfully deployed in the fall.

11.5.2. Plans for WG in 2026

Considering the significant time gap since the last walrus assessment in 2018, the SC **agreed** to aim for the Walrus WG to take place in 2026 as planned. This WG will require participation from Canada.

12. CETACEAN STOCKS – STATUS AND ADVICE TO THE COUNCIL

12.1. NARWHAL

12.1.1. Review and status of active requests (R-3.4.15)

Request R-3.4.15 (2024, Ongoing) *asks the SC to prioritise investigating alternative survey methods and survey frequency for small stocks, with a focus on beluga and narwhal in East Greenland.*

Progress on this request will be difficult to achieve, as new methods (such as the use of signature whistles for acoustic mark-recapture) are in very early stages of development. Genetic techniques like

close-kin mark-recapture may be more appropriate for investigating historical patterns, rather than future predictions. The SC **suggested** that the topic of how to survey small stocks be included in a broader discussion by the Working Group on Abundance Estimates (AEWG), regarding the development and application of alternative methods to assess population size, in the absence of conventional design-based surveys (see also Item 13).

12.1.2. Recommendations from the Working Group on Genetics

The Genetics WG made the following recommendations pertaining to narwhal:

- Generating high-coverage genome data for High Arctic–West Greenland narwhals to compare with the existing data from the Arctic Canada, to further elucidate population structure across the two regions.
- Conducting more in-depth research into the social structure of narwhal populations, including genetic relatedness and sex-based analyses.

The SC **agreed** to forward both recommendations to the Joint NAMMCO-JCNB WG (JWG). Additionally, a request to explore more recent demographic history and genetic divergence than that presented in their report will be submitted to the Genetics WG.

12.1.3. Plans for Joint NAMMCO-JCNB Working Group MEETING

There have been no updates on plans for a JWG meeting, which was postponed to 2025 due to lack of new data. The Secretariat will reach out to the JCNB to discuss this, as Greenland requires scientific advice for the West Greenland hunt.

12.1.4. Updates

Lydersen informed that he had participated in an Arctic oceanographic survey with the intent to tag narwhals in the northern Barents Sea; efforts were unsuccessful, mainly due to non-flying weather conditions, but will be attempted again.

There have been no new studies on narwhal conducted in East Greenland in 2024, nor have the catch data for that year been received yet by the GINR. Despite a government mandate that hunters provide samples of their catches for research, the GINR has not received any samples from 2024. The SC **reiterated** the recommendation from SC/30 that samples from hunts be provided.

Box 4. Research Recommendation from SC/31 pertaining to narwhal.

Greenland

- *(reiterated from SC/30)* Collect biological samples when available from East Greenland, including areas north of Scoresby Sound, to explore genetic connectivity of different stocks.

12.2. BELUGA

12.2.1. Review and status of active requests (R-3.4.16)

Request R-3.4.16 (2024, Ongoing) *asks the SC to prioritise the collection and analysis of information to improve the understanding of stock structure of beluga whales in East Greenland, which may allow future assessments for this species in this area.*

The SC will not be able to move forward on this request without more samples from East Greenland belugas. Given that only one animal appears (according to social media) to have been harvested in the area in 2024, and the GINR has not received a sample as requested, there is no new information on these animals.

12.2.2. Recommendations from the Working Group on Genetics

Regarding beluga, the Genetics WG recommended:

- Conducting continuous genetic analysis of any harvested individuals from East Greenland, to determine the proportions of harvested belugas from different genetic stocks.
- Conducting additional genetic analysis with more samples and high-coverage genome data of belugas from West Greenland and Canada to confirm (or negate) genetic differentiation.
- Conducting additional genetic analysis with more samples and high-coverage genome data of belugas from the High Arctic to confirm (or negate) genetic differentiation.

The SC **agreed** to forward the first recommendation to the ad hoc WG on Narwhal in East Greenland (NEGWG) and those relevant to Canada to the JWG.

12.2.3. Updates

There were no other updates on belugas.

12.3. HARBOUR PORPOISE

12.3.1. Tasks prior to 2026 Working Group meeting

The Harbour Porpoise WG is scheduled to meet in 2026, to conduct a stock assessment of harbour porpoises in all NAMMCO countries. Mikkelsen, Chair of the WG, reminded that there is concern over the porpoise by-catch rates in Norwegian fisheries and noted that there may be more focus on that region.

All data inputs necessary for a population assessment model must be in place prior to the meeting. Sigurðsson informed that there had been no aerial survey in Iceland in 2024 (and none are planned for the future), so a new abundance estimate for the area is unlikely to become available. Alternative survey methods will need to be explored, perhaps in the AEWG's dedicated discussion (see also item 13). Regarding Norwegian survey data, the mosaic minke whale surveys are not ideal for counting harbour porpoises because they are conducted at higher sea state thresholds and do not cover coastal areas, where porpoises are most often sighted. There are some data from fjord surveys that will be made available. There are plans to conduct tagging studies, as well as to back-calculate by-catch rates from all existing data. No new information is available from the Faroe Islands, as a specific survey would have to be conducted to generate abundance estimates. The recent aerial survey in Greenland generated an abundance estimate for West Greenland, while there were no harbour porpoise sightings in East Greenland (NAMMCO/SC/31/16). The SC **recommended** each country to focus efforts on collecting the necessary data. The status of information will be reviewed in early 2026 and the meeting will proceed in late 2026 if the data are deemed sufficient.

12.3.2. Updates

Frie presented a published paper by Frie and Lindstrøm NAMMCO/SC/31/FI25.

Summary

Frie informed about a study exploring the effects of methodological choices on the estimation and analyses of harbour porpoise life history parameters. Among other things, the study compared different practices for assigning age and reproductive status to porpoises from a recent Norwegian sample. Completion of growth layer groups (GLGs) well ahead of the calving season resulted in significant differences between reading practices for young animals. For older animals, assigned ages differed by several years (up to 18 years) between practices, due to different weighting of reading positions and tissue (dentine vs cementum). Furthermore, two different criteria for identification of *Corpora albicantia* resulted in different patterns of age-specific corpora accumulation. Both patterns have previously occurred in other data sets for harbour porpoises. Other sources of heterogeneities included different maturity criteria for males and the use of different mathematical approaches to

estimation of age at maturity and length-at-age curves. A meta-analysis of all published porpoise pregnancy rates showed a highly significant effect of including data from stranded samples, both with respect to average pregnancy rate and the relative explanatory power of various stressors.

Discussion

Some technical questions pertaining to methodology were discussed, including on the comparative accuracy of eye lens racemisation and age reading from tooth sections, whether the readers in this study had been tested for consistency using multiple samples from the same animal, and the reagent used to colour tooth sections. Rosing-Asvid proposed that a workshop or dedicated discussion be held (perhaps in conjunction with the HPWG meeting) to discuss these methods in detail and decide which are most appropriate for different life history parameters. The SC **agreed** that a workshop should be organised on age determination techniques for marine mammals.

Box 5. Research Recommendation from SC/32 relevant to harbour porpoise.

All Parties

- Focus efforts on collecting the necessary data for a full assessment of harbour porpoise stocks in all NAMMCO areas.

12.4. DOLPHINS

12.4.1. Review and status of active requests (R-3.9.6)

Request R-3.9.6 (Renewed 2019, ongoing) *asks the SC to carry out assessments of these [*Lagenorhynchus *and bottlenose dolphin] species.*

Regarding *Lagenorhynchus* dolphins, this request is currently fulfilled for white-sided dolphins, but white-beaked dolphins were only partially assessed in 2023, with the conclusion that removal levels might be unsustainable in West Greenland. In order to fully assess white-beaked dolphins, more information on stock structure and struck and lost rates in West Greenland is necessary (NAMMCO, 2023a; NAMMCO, 2024). Ugarte reported that the collection of samples in West Greenland for genetic analyses is ongoing. Samples are already available from East Greenland, meaning that stock structure between the two areas can hopefully be elucidated. Abundance estimates for white-beaked dolphins have already been calculated from the NASS 2024 survey (NAMMCO/SC/31/14). The SC **strongly reiterated** the previous recommendation (NAMMCO, 2024) to improve the estimates of struck and lost rates in the Greenlandic dolphin hunt. The status of information will be reassessed at SC/32, whereupon a decision to reconvene the WG on Dolphins may be made.

Regarding bottlenose dolphins, the observations (sightings, strandings, removals) are so limited in NAMMCO countries, that the SC does not envision a necessity for stock assessments in the near future.

12.4.2. Recommendations from the Working Group on Genetics

The recommendation from the Genetics WG regarding *Lagenorhynchus* dolphins would require efforts from Canada and the USA, as well as Greenland:

- Conducting range-wide analysis to fill in knowledge and sampling gaps for white-beaked and white-sided dolphins in the western North Atlantic, West Greenland, and East Greenland.

The SC **agreed** to forward the recommendation to the WG on Dolphins, as well as to scientists from Canada and the USA.

Box 6. Proposal from SC/31 relevant to dolphins.

Greenland

- *(reiterated from SC/30)* Validate the Greenlandic removals with a special focus on minimising underreporting and estimating struck and lost rates, thus facilitating a full assessment of white-beaked dolphins as soon as possible.

12.4.3. Updates

Mikkelsen mentioned tooth and eye samples from 150 white-sided dolphins in the Faroe Islands that will be analysed and integrated into the current life history information. A telemetry study (TOPLINK project) on white-sided dolphins is due to be completed by the end of this year and results will likely be presented at SC/32.

12.5. PILOT WHALE

12.5.1. Review and status of active requests (R-3.8.6)

*Request **R-3.8.6 (2011, Ongoing)** is for a full assessment of pilot whales in the North Atlantic and to provide advice on the sustainability of catches, as soon as necessary further information becomes available, with particular emphasis on the Faroese area and East and West Greenland.*

The WG on Pilot Whales (PWWG) is scheduled to convene in late 2025, to conduct an assessment for the North Atlantic.

12.5.2. Recommendations from the Working Group on Genetics

The Genetics WG provided some guidance on the necessary information to delineate pilot whale stock structure, required in advance of the PWWG meeting:

- Determining population structure at the scale of the North Atlantic, and whether this structure is driven geographically or socially by range-wide sampling of family units and single individuals, and keeping exact track of where the samples are sourced.
- Conducting genetic analyses of tagged pilot whales, to compare movement, foraging, and social behaviour with relatedness, genetic structure, diversity, and potential adaptations.
- Initiating a dedicated genetic monitoring program based on archival and newly collected samples from harvested groups in Greenland and the Faroe Islands, as well as in mass stranding events wherever they occur, to determine:
    i. family groupings and social structure,
    ii. putative population of origin,
    iii. the influence of removing entire family units during pilot whale hunts, for instance in terms of genetic diversity, inbreeding levels, mutation load, and standing genetic variation.

The SC **highlighted** that the recommendation pertaining to stock structure is of paramount importance and **recommended** that it be completed before the PWWG meeting. The DolphinUnit project, led by Tange Olsen and Marie Louis (GINR), is expected to begin analysing samples in February 2025; the SC **urged** that pilot whale samples be sequenced and analysed as a top priority.

12.5.3. Plans for Pilot Whale Working Group in late fall 2025

Phil Hammond has agreed to Chair this WG and Mikkelsen will be Convenor. The data necessary for conducting a full assessment have been identified with the Chair's advice and based on the needs identified by the 2022 HPWG. These are summarised in NAMMCO/SC/31/20. The Secretariat requested that the different countries complete and update WD/20 by the end of the week and will

continue to request status updates at regular intervals in the coming months. At present: Mikkelsen is hopeful that the necessary Faroese analyses on genetics, abundance, and life history parameters will have been completed on time; Leonard mentioned that Norway has not had sufficient sightings of pilot whales to estimate abundance in their standard survey blocks, but including fjord surveys (particularly Vestfjord) may make an estimate possible. This will be considered with the new model-based estimates being developed.

Potential invited experts for the PWWG meeting were suggested. The Secretariat will follow up with the Chair and reach out to invite researchers accordingly.

The venue for the PWWG meeting will be decided by March 1.

12.5.4. Updates

Sigurðsson informed of a recent publication (NAMMCO/SC/31/FI21) on the trophic ecology of pilot whales around Iceland, based on four mass and twelve individual strandings. The findings indicate a dietary specialisation of cephalopods.

Mikkelsen informed about research progress in the Faroe Islands, in relation to the upcoming assessment later this year. 61 pilot whales, from 15 pods, have so far been tracked, to explore movements and distributions in the North Atlantic, and to determine the recruitment area for the pilot whales taken in the hunts. Ageing of teeth and analysis of female reproductive organs is ongoing. Subsamples from a large sample set collection from catches in 2011–2024, covering all years, will be analysed, as previously recommended by the SC. The catch statistics, kept at the Faroe Marine Research Institute, are continuously updated as new hunts occur. The Faroese NASS 2024 survey data will be analysed together with Icelandic and Norwegian data, and new pilot whale abundance estimates will be presented to the Abundance Estimation WG in the fall.

Ugarte informed that tracking results from pilot whales tagged in the Faroe Islands, Greenland, and Iceland indicate that some animals spend considerable time near the continental shelf edge. Mikkelsen noted that, due to limited tag longevity and the fact that pilot whales (and dolphins) are generally tagged in summer months, March to May are the months with the least coverage.

Ugarte further informed that a proposal for a workshop on long- and short-finned pilot whales has been submitted to the European Cetacean Society (meeting in May 2025), with the aim to review current knowledge and research gaps across the North Atlantic (NAMMCO/SC/31/FI42).

Box 7. Research Recommendation from SC/31 relevant to pilot whales.

All Parties

- Complete the recommendation from the Genetics WG to *"determine population structure at the scale of the North Atlantic"* prior to the meeting of the Pilot Whale WG in late 2025.

12.6. NORTHERN BOTTLENOSE WHALE

12.6.1. Review and status of active requests (R-1.7.11)

R-1.7.11 (2019, Ongoing) *asks the SC "to develop estimates of abundance and trends as soon as possible once the [NASS 2015] survey has been completed."*

Leonard informed the SC that the estimates from the last NILS cycle have been published. However, a challenge with generating a wide-scale estimate is the overlap with the NASS survey area. This overlap can be addressed by combining the mosaic and synoptic surveys and excluding the overlap area from the estimates. The two estimates for 2015 also used different effort thresholds for Beaufort Sea State (BSS). In a side discussion, Sigurðsson and Leonard agreed that the NASS data could be adjusted to use

BSS 4 as a cut off for effort instead of BSS 3 as is currently published. An alternative approach would be to create model-based estimates using data from all past surveys, which could also incorporate incidental observations collected over the years. This is currently being done for non-target species for Norway's surveys and Sigurðsson and Mikkelsen have agreed to make Icelandic and Faroese NASS data available for similar model-based estimates.

12.6.2. SC Review of available information

At SC/30, it was agreed that the SC would assess all the information on northern bottlenose whales. It was decided to wait until the new abundance estimate from NASS 2024 has been generated and the trend analysis has been conducted, per R-1.7.11. Those data will allow for a more organised approach to a review.

12.6.3. Updates

Mikkelsen informed that there are plans to develop a stranding sampling protocol for northern bottlenose whales in the Faroe Islands, but that no strandings have been reported in the past two years.

Researchers from the University of Iceland have been tagging northern bottlenose whales, with preliminary findings indicating that they migrate south during winter and return north in the spring.

Ugarte noted that Greenland halibut surveys in the Davis Strait are consistently accompanied by numerous sightings of northern bottlenose whales.

A recent paper published in NAMMCO Scientific Publications Vol. 13 by Ramirez-Martinez et al. (2024) (NAMMCO/SC/31/FI44) discusses the distribution and habitat use of deep-diving species, including northern bottlenose whales.

12.7. BEAKED WHALES — UPDATES

There were no research updates presented to the SC on the topic of beaked whales.

12.8. BLUE WHALE — UPDATES

Lydersen presented on the deployment of MINTAG tags from helicopters, highlighting the ability to tag blue whales in Svalbard with fewer weather constraints compared to boat-based tagging. Two blue whales were successfully tagged with MINTAGs. These, in addition to six more tags deployed previously in Svalbard, were tracked moving along the Greenlandic shelf and through the Denmark Strait.

It was noted that 36 blue whales were observed in the Svalbard area during the NILS survey, suggesting sufficient numbers for design-based abundance estimates. Mikkelsen mentioned that, in contrast, only one blue whale was observed in the Faroese NASS survey, indicating their scarcity in that region.

12.9. BOWHEAD WHALE — UPDATES

Heide-Jørgensen reported that bowhead whale abundance in Greenlandic waters has increased since 2000, with a quota established in 2009. The latest abundance estimate, based on the 2016 survey, indicates a stable population. However, as some bowhead whales arrive in Greenland after the survey period, the estimate does not represent the total population but merely serves as the foundation for catch determinations.

There were no new updates from Norway's tagging efforts in Svalbard; however, 10 passive acoustic monitoring devices are still collecting data. During the NILS survey, six bowhead sightings were recorded east of Svalbard, far from the ice.

12.10. COMMON MINKE WHALE — UPDATES

Leonard reported the completion of the 2020–2025 mosaic survey (NILS) cycle a year early, highlighting challenges posed by the inability to survey Russian waters. This issue is expected to become exacerbated in the coming years, as evidence suggests that minke whales are moving eastward into the Barents Sea (and thus out of surveyable waters). To address this, spatial modelling will be utilised to extrapolate into the unsurveyed area, and alternative methods such as new survey platforms and eDNA analysis are being considered for future surveys.

A preliminary abundance estimate is expected in May 2025, with the final estimate ready by April/May 2026. These estimates will inform new minke whale quotas for 2027. It was noted that this is the last year the mosaic surveys will be conducted.

Haug presented a published paper on the diet of minke whales (NAMMCO/SC/31/FI43).

Summary

As part of the large Norwegian research program "The Nansen Legacy", the diet of common minke whales was assessed both in terms of short-term (morphological analyses of digestive tract contents) and longer-term (tissue chemical markers: fatty acids and stable isotopes) prey use in the northern Barents Sea to see if they are prey shifting. Samples (blubber cores, muscle, and stomach contents) were obtained from 158 common minke whales taken during Norwegian commercial whaling operations during summer over the period 2016–2020. Two prey items, capelin and krill (primarily *Thysanoessa* sp.), dominated the stomach contents in the entire period of investigation, which included sampling both in June and in August, similar to findings from earlier studies. Lower blubber fatty acid (FA) contents in 2016/2017 as compared with 2018/2019 were observed. This is most likely explained by differences in sampling time (June in 2016/2017 vs August in 2018/2019, i.e., after a longer feeding period during the summer in the latter case). This explanation also fits with the fact that FA profiles of the 2018/2019 whales were more similar to the FA profiles of the potential prey, presumably reflecting the two-month longer assimilation time for these whales. Multidimensional mixing models based on carbon and nitrogen isotope composition of the most likely prey groups suggested that the whales ate mostly krill in four of the five sampling years. In 2018 there were indications of a higher proportion of gadoid fish, showing some dietary flexibility. The trophic level of the whales' feeding, as interpreted from the nitrogen isotope values, was positively correlated with blubber thickness, suggesting that fish-eaters tended to assimilate more energy than whales that focused more exclusively on lower trophic levels. The variation suggested by different dietary analysis methods—stomach contents, fatty acids, and stable isotopes—most likely reflects different turnover times, with muscle stable isotopes likely representing several months of dietary integration, while lipid stores are more dynamic and may represent weeks, and stomach contents represent feeding events during the last few hours.

12.11. FIN WHALE — UPDATES

Sigurðsson presented findings from NAMMCO/SC/31/FI19 on stable isotope time series in fin whale baleen, showing that behavioural shifts in both trophic level and latitude correlate with the North Atlantic Oscillation (NAO) and Atlantic Multidecadal Oscillation (AMO).

Questions were raised about the clarity of time profiles in baleen plates, which show annual growth layers fairly clearly, but the quality of which can deteriorate over time. Confidence in the Atlantic isoscape was also discussed, with concerns about variability between coastal and offshore areas at similar latitudes and the influence of changing water masses and current strength.

12.12. HUMPBACK WHALE — UPDATES

Sigurðsson reported three additional matches between humpback whales in Cape Verde and West Greenland, adding to the one identified in NAMMCO/SC/31/FI16. This new information will be

presented at the European Cetacean Society (ECS) meeting and included in the North Atlantic humpback whale assessment at the International Whaling Commission (IWC).

Sigurðsson also noted that, in a study of scars cause by killer whales, the highest proportions were observed on humpback whales in Canada. It was remarked that scarring does not necessarily indicate predation attempts on the part of the killer whales, but are often observed as a result of resource competition in Norwegian waters.

12.13. KILLER WHALE — UPDATES

Ugarte presented an overview of 250 years of research on killer whales in Greenland.

Summary

Greenlanders have hunted killer whales as a team effort for generations, and hunters are the main source of information about killer whales in Greenland. Killer whale catches in West Greenland are spread in low numbers over a large area throughout the year. In the 1980s, killer whales were more frequently seen in the coastal waters of Qaanaaq (northwest Greenland) and South Greenland and rarely seen in East Greenland. Norwegian catches from 1938–1981 concentrated offshore in South Greenland and east of the ice belt off the coast of East Greenland. Due to a regime shift manifested by the disappearance of this drifting belt of sea ice along part of Greenland's east coast in 2003, catches in East Greenland are now regular. Killer whales in Greenland have a mixed diet of fish and seals and are genetically close to killer whales in Arctic Canada, Iceland, and Norway. There seems to be matrilineal site fidelity, with genetic exchange occurring through males mating with overlapping populations. There is a Photo ID match that confirms movements between West Greenland and Canada. The population size is unknown, the contaminant load is high, and it is unclear whether catches are sustainable.

Discussion

The SC discussed the available data on killer whales to determine the feasibility of conducting a full assessment, as killer whales have never been assessed. Most of the information from Greenland comes from genetic analyses of tissue collected in Southeast Greenland. Currently, there is only one sample from West Greenland and one from Central East Greenland. However, more data are gradually becoming available.

It was noted that recent catches in South Greenland were strikingly high, and the SC members highlighted the need to verify catch data for killer whales in Greenland, as validation of data from 1996–2007 showed several false positive reports. Struck and lost values for killer whales in Greenland are high. The Greenlandic delegation explained that misreporting of species not regulated by quotas can happen due to human error, as hunters are requested to write once a year the number of animals killed each month, from a long list of species. In addition, it is possible that in a collective hunt, several hunters report the same catch. Furthermore, it is generally unclear if stuck and lost animals are reported. Verifying the actual catch numbers requires contacting hunters individually, a process that is extremely time-consuming. The SC **recommended** verifying all killer whale catches every year to ensure accuracy.

Following the recommendation from SC/28, that NAMMCO become involved in the organisation of the North Atlantic part of a Killer Whale Symposium organised by CIRCE, the Secretariat has arranged support in the form of funding for two students from NAMMCO countries to present their research, and in-person to facilitate a workshop on North Atlantic killer whales. This workshop will be co-chaired by Ugarte and Filipa Samarra (Iceland).

Box 8. Proposal from SC/31 relevant to killer whales.

Greenland

- Verify all killer whale catches every year to ensure accuracy of reporting.

12.14. SEI WHALE — UPDATES

Lydersen reported that sei whales are rarely visually observed near Svalbard, however, they are commonly detected during passive acoustic monitoring in the area, and he suggested that this discrepancy could be due to visual identification challenges.

Leonard noted that several sei whales were recorded in the latest NILS survey and agreed that misidentifications are likely, especially when observers do not expect to see them. She added that sei whales are frequently observed in Vestfjorden during fjord surveys, indicating they are consistently present in Norwegian waters in the summer.

Haug proposed that the presence of abundant food further south might explain why sei whales do not always migrate far north. Historical records show periods of "sei years" (1864–1904), where prey was abundant and so were the observations of this species. Haug highlighted that, in older surveys, the protocol included approaching whales after observing a blow, to confirm the species identification. The rule of thumb for whalers was a criterion still used in surveys today, namely, that the simultaneous appearance of the dorsal fin and blow indicates a sei whale, whereas a dorsal fin preceded by the blow alone indicates a fin whale.

Sigurðsson mentioned a sei whale stranding in Iceland that was successfully refloated. Media coverage initially misidentified the whale as several other species before confirming it was a sei whale.

12.15. SPERM WHALE — UPDATES

Lydersen presented sperm whale migration research that has been submitted for publication.

Summary

To study movement patterns of adult male sperm whales, 29 individuals were equipped with satellite transmitters in the Northeast Atlantic Arctic (69–79°N). Twelve of these animals undertook southward migrations. Departures from northern latitudes occurred asynchronously from January to October, indicating that sperm whales do not have a well-defined breeding season. Migrating males travelled 40 (±11) days to reach the breeding areas at latitudes below 45°N. The distance from the start of their migrations to the furthest points on their paths ranged from 3,993 to 7,951 km. They spent 76 (±22) days in the south, roaming across an enormous region (>10 million km^2). Dives deeper than 1,000 m occurred both during migration and at the breeding grounds. Two whales were tracked back to Arctic waters. Their trips took 175 and 180 days, with cumulative distances travelled being 16,332 km and 17,669 km, respectively.

13. NASS 2024 REPORT

13.1. SURVEY OUTCOMES AND EVALUATION

Desportes presented the NASS 2024 report, highlighting issues encountered during the cruises, as well as suggestions for improvement (NAMMCO/SC/31/08).

Summary

The NASS 2024 survey, conducted by NAMMCO member countries (Faroe Islands, Greenland, Iceland, and Norway), aimed to estimate cetacean abundance and distribution across the North Atlantic. The survey utilised various platforms, including dedicated vessels, aerial surveys, and opportunistic fishery

vessels, and achieved approximately 80% of its planned coverage (Figure 3). Challenges such as weather constraints and logistical difficulties affected some survey components, but satisfactory results were obtained overall.

Greenland successfully completed aerial surveys in East and West Greenland. The Faroe Islands, Iceland, and Norway reported partial survey completion, with both Norway and the Faroe Islands encountering issues related to observer coverage and platform configurations. Iceland encountered unexpected amounts of ice cover during their dedicated survey. The survey coverage raised questions about the suitability of opportunistic platforms and the need for consistent data collection methodologies.

Outreach efforts, including a live-updated webpage (nass.nammco.org/2024/), boosted public engagement, although communication issues between survey teams and the Secretariat were noted. In future, it was agreed that cruise leaders delegate outreach-related tasks to other observers on board.

Data analysis is ongoing, with countries prioritising target species while exploring joint approaches to pooling datasets for unified abundance estimates. The NAMMCO Abundance Estimates Working Group (AEWG) will oversee the review and analysis, with a focus on ensuring data consistency and addressing duplicate sightings. Future discussions on alternative survey methods, including drones and passive acoustics, are planned to adapt to changes in dedicated survey feasibility.

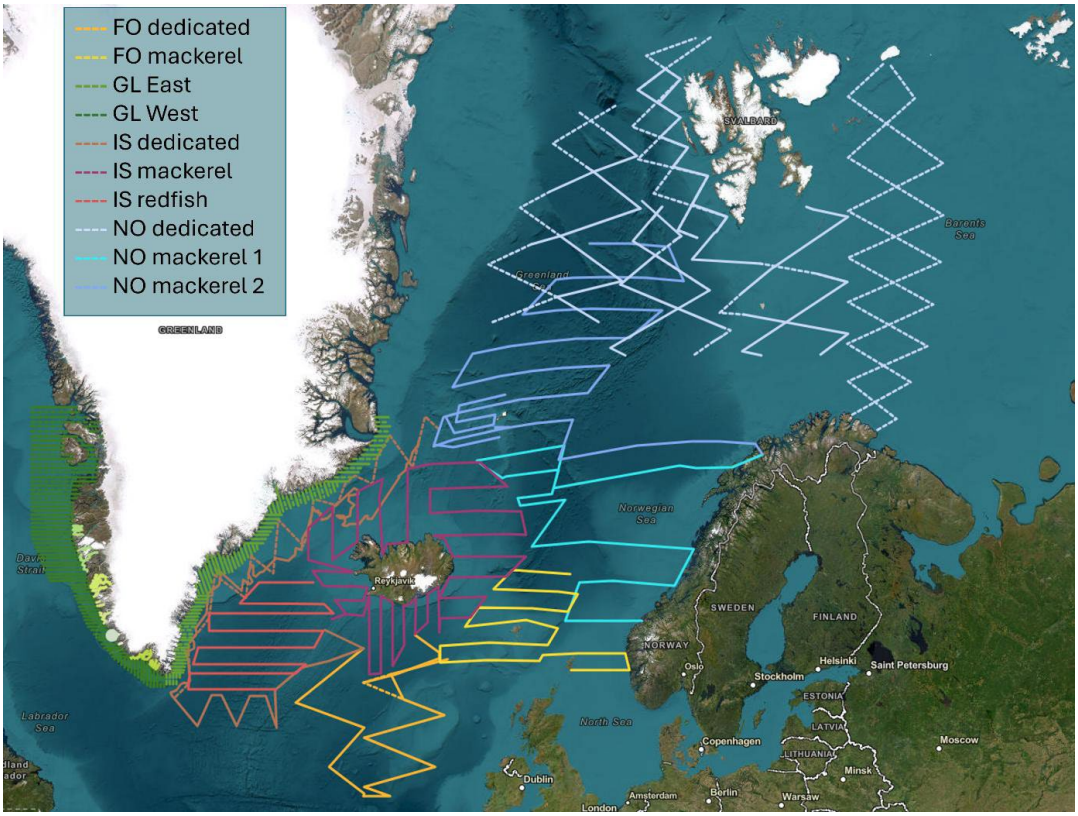

Figure 3. Planned (dashed lines) and achieved (solid lines) transects of NASS 2024 survey platforms.

Discussion

The SC thanked Norway for the generous voluntary contribution to NASS 2024, which not only financed the East Greenland aerial survey, but also allowed for considerably extended coverage by the Faroese and Icelandic vessels.

13.2. PLANS FOR ABUNDANCE ESTIMATES WORKING GROUP

Desportes summarised the outcomes of the first Abundance Estimates Working Group (AEWG) meeting following NASS 2024, held on January 21 (NAMMCO/SC/31/22).

Summary

Greenland has completed abundance estimates for target species using aerial surveys conducted in East and West Greenland. The Faroe Islands and Iceland have finished cleaning their survey data but have not yet validated or identified duplicate sightings. Norway is working on analysing minke whale data from a dedicated survey, which will be presented at the IWC in 2026. Duplicates for all species in the Norwegian dedicated survey were identified in the field; however, duplicates for the mackerel survey have not yet been addressed. A method for post-survey duplicate identification is urgently needed by the Faroe Islands, Iceland, and Norway.

An in-person AEWG meeting will take place in late September or early October to review or reanalyse data before the Pilot Whale Working Group meeting in November. A second meeting is expected to follow in Spring 2026. The Greenlandic abundance estimates will be submitted for endorsement at the AEWG's fall meeting, after scrutiny by the IWC Working Group for Abundance Estimates.

The Faroe Islands, Iceland, and Norway will determine the best approach and personnel for identifying duplicates in their datasets (excluding Norwegian dedicated survey data) within the next three weeks. These countries will also discuss pooling their data to generate a unified abundance estimate for each species across the three nations.

As Norway is discontinuing dedicated cetacean surveys, and other countries may follow suit, the AEWG recognises the need for a discussion or workshop on alternative survey methods, such as drones, acoustics, and opportunistic surveys. This discussion may occur at an AEWG meeting or in collaboration with the IWC's Working Group on Abundance Estimates.

Discussion

The SC **endorsed** the proposal to hold a discussion or workshop on alternative survey methods, such as drones, acoustics, genetics, and opportunistic surveys (see item 11.3.2). The SC suggested including a discussion on surveying small stocks and inviting external experts with experience in large-scale surveys. Japan expressed interest in joining the workshop.

14.COLLABORATIVE PROJECTS

14.1. MINTAG PROJECT

Heide-Jørgensen presented the progress of the MINTAG project, as well as the discussions from the MINTAG StG and Wildlife Computers (WC) meeting held prior to the SC meeting (NAMMCO/SC/31/07rev).

Summary

In 2024, Iceland, Japan, and Norway received 10 tags each, five with a cone configuration and five with a petal configuration. While not all tags were deployed in 2024, the V0c tags have been shown to perform better compared to the V0c tags deployed in 2023. In addition to the V0c tags used through the MINTAG project, eight V0b tags and nine V0c tags were deployed through collaborative projects. The Norwegian MINTAG team successfully deployed seven V0c tags, on three minke whales and four fin whales, while an eighth tag was lost, between May and July 2024. The deployments in Japan were conducted as part of a sighting survey for cetacean abundance estimates in the western North Pacific. Three tags were used: one was successfully deployed on a fin whale, another was lost, and the third missed its mark but was recovered by the tagging team. In Iceland, the tagging took place over two periods from mid-August to mid-September, for a total of 10 days. Bad weather significantly hampered the efforts, resulting in only one V0c-P tag being deployed. However, the tag was successfully attached

to a minke whale, and the tagging team managed to observe the whale for one hour following deployment. Two collaborative projects (lead by Heide-Jørgensen and Lydersen) provided data from their deployments, where a total of five V0b Fin V2 tags were deployed. Three of the tags were deployed on bowhead whales in Disko Bay, West Greenland, in May 2024 by Heide-Jørgensen. The remaining two tags were deployed from a helicopter on blue whales in northwest Svalbard in August 2024 by Lydersen (see also Item 12.8). Another collaborative project (lead by Heide-Jørgensen and Alex Zerbini, NOAA) deployed nine V0c-P tags and three V0b Fin V2 tags on southern right whales in Argentina. During this effort, three V0b tags were not successfully deployed because problems with attachment and launching issues specific to these tags were experienced.

Of the deployed tags 69% transmitted data successfully, compared to the 48% (11 out of 23) of the tags successfully deployed in 2023. Three out of the four unsuccessful tags were shot but did not hit the whale and one got deployed but did not transmit data. The longest deployment lasted 211 days, with intermittent data transmission (Figure 4). Another tag, which was embedded too deep according to the deployment report, uplinked for the first time 31 days after being deployed and started sending data 196 days after the deployment (tag 187219 deployed by Norway). This tag, on a fin whale, migrated south of the Azores, before starting a northward movement. The most consecutive data was transmitted over almost 109 days of continuous data transmission since the day of deployment (tag 186215 deployed by Iceland) (Figure 4). The MINTAG project is primarily a tag development project, but the tracks from two minke whales and one fin whale have already provided valuable new data about the wintering area for these whales. Further tracking will provide a wider understanding of the migrations of these species, and there are plans to continue and expand the tagging effort in 2025.

Plans for 2025 will include tagging of pilot whales in East Greenland, Norway, and the Faroe Islands, as well as tagging of minke and fin whales in Norway, Iceland, and Japan. Slightly modified versions of the tags, including a double battery available in September 2025, will be used. For dissemination of results from the project, it was decided to postpone a formal scientific publication to 2026. An offer for members of the StG to be part of a full-day workshop at the biannual conference of the Society of Marine Mammalogy (SMM) in 2026 was well received by the StG. The MINTAG StG also expressed interest to be part of the steering committee of the workshop. The workshop should allocate half the day for veterinary and health issue discussions and the other half for technical discussions about developing the optimal whale tag. Manufacturers, veterinarians, and funding agencies should be invited to the workshop.

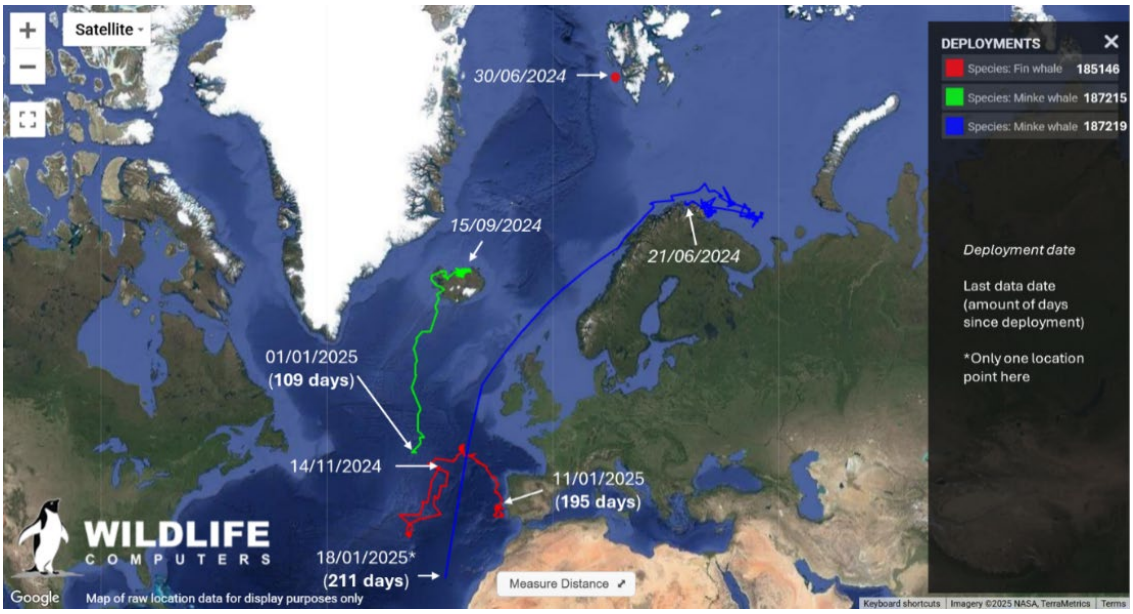

Figure 4. Map showing the three tag deployments with the longest duration as of 19 January 2025.

Discussion

Given that many tags were not deployed, the SC **recommended** maintaining open communication with other research groups involved in tagging to facilitate the deployment of tags. In 2024, only 13 out of 30 tags were deployed. Leonard informed the SC that the Institute of Marine Research in Norway will conduct a tagging cruise in July 2025, during which additional tags could be deployed. In addition, she mentioned tagging opportunities in November, when fin whales are near Tromsø, which would allow the team to test the longer tag version.

Desportes emphasised that all participating countries deployed considerably fewer tags than those they had initially committed to. She reminded the StG that these commitments must be matched by equivalent effort. The SC agreed, and hoped that the lack of a wide-scale survey (which took up significant time and effort in the previous year) will allow for more dedicated tagging efforts in 2025.

The SC concurred with the decisions made by the MINTAG StG and expressed support for the group's participation in the workshop on tag development during SMM 2026.

14.2. COOPERATION WITH JAPAN

14.2.1. Northeast Atlantic–Northwest Pacific Ecosystems

Luis Pastene presented the work conducted in the past year on the ecology of minke whales in the North Pacific (NAMMCO/SC/31/FI22).

Summary

At its 30th meeting, the SC agreed to form a small group composed of Martin Biuw, Heide-Jørgensen, Lindstrøm, Sigurðsson, Hiroko Solvang, and Tsutomu Tamura to continue the discussions on a research project presented by Japanese scientists to understand the factors behind annual changes in distribution and feeding ecology of western North Pacific common minke whales. Results of this research would be compared with those for the North Atlantic common minke whales obtained previously. The SC also agreed that Pastene be the primary coordinator of future discussions.

The SC concurred that the two initial analyses proposed to start the project were sound:

1. Check whether there is a relationship between common minke whale distribution and water temperature on a map. For this purpose, GIS software can be used to map whale distribution and water temperature overlap. Some additional information (*e.g.* prey species distribution and abundance) can be added to the plotting.
2. Blubber thickness, girth, length, and body weight (indicators of body condition of common minke whales) can be analysed employing a GAM model using Fused Lasso to investigate spatial effects, yearly trends, and effects from several covariates. As covariates, research year, calendar day (From 1 April), water temperature, sex, maturity, latitude, longitude, and prey species will be used.

Pastene presented a report of the work conducted in the intersessional period along those two analytical lines. Analyses were focused on the North Pacific common minke whales, and the research area was Sendai Bay, in the northeastern part of the Japanese main island. The time period was the spring in the years 2003–2023. The following data and samples were available for the analyses: biological data for the common minke whales sampled in previous research programs and current commercial whaling; prey species data (sand lance distribution and density index); and surface temperature.

Regarding the analysis 1. above, the relationship between common minke whale distribution, surface temperature, and prey species (contained in the stomach of whales) was updated for the period 2003–2023 using Quantum Geographic Information System (QGIS) software. Also, the relationship among sand lance distribution, abundance, and surface temperature was investigated by QGIS software for the same period.

Regarding the analyses 2. above, several analyses were conducted: correct-catdap; statistical analysis on the relationship between blubber thickness and body length; linear relationship between body condition and several covariates; and analysis of the relationship between body condition and several covariates using GAM and VCM.

Pastene proposed that the preliminary results of the exploratory analyses are discussed in the next intersessional period by the small group. Updated analyses that follow suggestions and comments from the small group could be discussed at the 32nd NAMMCO SC meeting.

Discussion

The SC commended the rapid progress of the collaboration and **agreed** that the methodological approach and suggested next steps are sound. The composition of the small working group allows for some flexibility in the Japanese participation. Pastene will continue to coordinate the progress of the small working group intersessionally.

14.2.2. Further collaboration

Pastene presented an international workshop on the use of genetic data for the identification of whale stocks, which was held in Japan NAMMCO/SC/31/FI45. Participants included geneticists from Norway and Iceland, and other members of the NAMMCO Genetics WG.

Summary

An international workshop on the use of genetic data for whale's stock identification purposes was organised by the Institute of Cetacean Research (ICR). The workshop was held from 18 to 22 February 2024 in Taiji, Wakayama Prefecture, with two main objectives: (1) to exchange information on genetic techniques–laboratory and analytical–used on large whale's stock structure studies in institutes in Germany, Iceland, Norway, and Japan, and (2) to identify future collaborative research topics on population genetic structure of baleen whales.

Objective (1) was implemented through the following activities: (i) training course in the use of the Single Nucleotide Polymorphism (SNP) technique by an experienced German scientist; (ii) visit and advice from experienced foreign scientists to the recently established ICR, Taiji Office, including the genetic laboratory; and (iii) oral presentations on population genetic studies on whales conducted in each country. Activities (i) and (ii) above were carried out at the ICR Taiji Office, and activity (iii) including discussions on future research collaborations, i.e., objective (2), were carried out at the Taiji Whale Museum.

Based on the three activities above, several topics for future international research collaborations among scientists from Germany, Iceland, Norway, and Japan were identified. Details can be found in the proceedings of the workshop, which was circulated among members of the Committee.

14.3. OTHER COLLABORATIONS

Ana Cañadas (Duke University, USA) and Tiago Marques (St Andrews University, UK) presented a request for cetacean survey data to be used for spatial modelling purposes (NAMMCO/SC/31/FI23).

Project: Eastern North Atlantic II

The Marine Geospatial Ecology Laboratory (MGEL) at Duke University seek a collaboration whereby we would include your survey data (either aerial or shipboard), i.e. effort and sightings data, in the larger modelling effort, from as many years, seasons and areas you may have. Our highest preference is for line transect data collected under distance sampling protocols. Most of you already collaborated and shared your data for the previous round of modelling, with data up to 2018, and most of you have already confirmed that we have permission to use those data again. Now we would be very grateful if you could collaborate again and share new data you may have since 2018, to improve the models. Our project is focused on ensuring that a major U.S. user of eastern Atlantic waters (the U.S. Navy) properly accounts for its potential impact on cetacean species. This is primarily a management exercise towards

species conservation (i.e. understanding the species-habitat relationships and preferred habitats to properly manage an impacting human activity).

In this project, we expect to have interesting scientific results, beyond what is of primary interest to the Navy for management purposes. For example:

- Overall abundance estimates for each species or group of species for which there are enough data, as well as stratified estimates for areas of interest, e.g. local areas of interest for the data contributors
- Year-round, seasonal, or monthly absolute density maps (as allowed by the data availability), both overall and for local areas of interest for the data contributors
- Identification of hot spots for each species/group of species and the environmental covariates that may be driving them, either overall or through inter-annual or seasonal variations.
- Detailed biodiversity maps, e.g. species richness or other diversity indices, derived from the density maps
- We are also open to discussion about any other potential outcome that you may consider interesting.

Project: AMERICANO

MGEL and the University of St. Andrews seek a collaboration on the AMERICANO project. This project is fundamentally a scoping exercise, in which we are exploring all possible data that might exist to inform basin-scale modelling efforts, as well as what methodological innovations might be needed to integrate them to produce the best possible density estimates for the most remote waters of the North Atlantic. Therefore, we are requesting information on which additional data, other than the visual surveys needed for the Eastern North Atlantic II project discussed above, that you may have available for eventual basin-scale modelling of the whole North Atlantic Ocean. Such datasets might include:

- Telemetry data (DTags or satellite tags)
- Mark-recapture data
- Passive acoustic data
- Opportunistic sightings
- Anything else you can think of that could inform our understanding of the spatiotemporal occurrence of marine mammals in distant offshore waters.

At this time, we are not requesting the data themselves, only to discover that they exist and to collect some information from you about them, such as what kind of data they are, which species they concern, and where and when they were collected. Following your positive reply, we will follow up with you about what specific information we need. The Navy indicates to us that project AMERICANO is likely to be followed by additional projects in which these diverse datasets and new methods can be brought together and used in practice to produce such basin-scale models, following the same collaborative principles and guidelines presented above. If such follow-on projects come to pass, we will follow up with you again at that time to solicit your further collaboration.

Discussion

The SC thanked the presenters for their time and responded that they will need to discuss the data requests internally before giving a reply. Specifically, ideas for reciprocation (in the form of processed datasets or other outputs that could be beneficial to specific NAMMCO goals) would need to be formulated and discussed before a memorandum of understanding could be signed.

This discussion brought up a general comment, that as a rule, any collaborators receiving NAMMCO data can be asked to return their processed data in a useable format (shapefiles, CSVs, etc.), to be stored centrally at the Secretariat and made available to the Parties as needed.

15. MANAGEMENT PROCEDURES

15.1. REVIEW AND STATUS OF ACTIVE REQUESTS (R-1.6.5, R-1.6.8)

R-1.6.8 (2023, Ongoing) *states that "The SC is requested to prepare a tentative long-term plan (10-15 years) for the assessments of all the stocks within the remit of NAMMCO. The SC should also propose a system for categorising the status of these stocks reflecting abundance, status of knowledge, and levels of removals."*

The long-term plan proposed by SC/30 will be revised as necessary, depending on changes in data availability and concerns for different stocks. A system for categorising the stocks was discussed under item 15.3, below.

15.2. DEFINING MANAGEMENT UNITS

This topic was not discussed, due to time constraints.

15.3. STOCK STATUS SUMMARY FOR MANAGERS AND DISSEMINATION

Garagouni presented a draft of a system called TrACK, to combine a visual summary of stock status with textual explanation (NAMMCO/SC/31/18). The proposed system would reflect information on population trends, abundance, catches, and knowledge, and is intended to rapidly convey information on the status of NAMMCO stocks that undergo removals. The visualisation would also include an indication of the SC's own credence in the information supplied for each criterion.

Some members of the SC expressed concern about using such a simplistic system to signify stock status, given the complexities involved in stock assessment. However, the SC acknowledged that it would be an effective way to communicate key information to managers, and also to the public, and assist in the prioritisation of recommendations for specific stocks, as well as in following up on recommendations previously forwarded to the Parties.

Several modifications were discussed, along with the advantages and disadvantages of different criteria and visualisation layouts. Given the time constraints of the meeting, no consensus was reached. However, sufficient constructive comments were made as to enable the discussion to continue intersessionally, with the aim to refine this system and test it more thoroughly.

16. NAMMCO SCIENTIFIC PUBLICATIONS – VOLUMES 13 & 14

El bani Altuna summarised the contributions to Volume 13 of NSP, titled *"Marine Mammals in the North Atlantic (II)."* The volume comprises five articles, one review, and two notes. She highlighted that there were difficulties in finding appropriate and willing reviewers, which delayed the publication of most manuscripts significantly. She noted that, as a way to improve this process for Volume 14, on the theme of *Anthropogenic Impacts on Marine Mammals*, section editors had been invited with relevant expertise the subjects of by-catch, tourism, noise, and contaminants. The low number of contributions to previous volumes was also pointed out, and SC members were encouraged to keep NSP in mind as a forum for publication of student theses, short notes, and datasets that may not be publishable elsewhere, but which contain valuable information.

Discussion

The SC **recommended** renewing the editorial board to actively guide the journal's direction and streamline the publication process. The SC suggested including well-known scientists on the editorial board to help promote the journal within their professional networks. Names were put forward to which the Secretariat will reach out.

The SC also **agreed** to continue NSP, with the next volume (Volume 15, to be published in 2026) dedicated to contributions related to the NASS 2024 results.

17. FUTURE WORKPLANS

The workplan **recommended** by the SC for 2025 is presented in Table 3, together with a provisional schedule for 2026 and 2027. The proposed workplan is in line with the long-term assessment plan presented under item 5.2.

The 32nd SC meeting will be held in the Faroe Islands. The precise dates will be decided shortly.

Table 3. Future workplan recommended by SC/31. Meetings in bold should not/cannot be moved to other years.

2025	2026	2027
WG and WS meetings: • WG on By-catch (online) • **Abundance Estimate WG (physical)** • **Pilot Whale WG (physical, late 2025)** • JWG NAMMCO-JCNB (physical, late 2025 or early 2026) • **WS on alternative methods for abundance estimation**	**WG and WS meetings:** • Large Whale Assessment WG (physical, spring 2026) • **Harbour porpoise WG (physical, late 2026)** • **Coastal Seals WG (physical, spring 2026)** • **Walrus WG** • WG on By-catch (online) • **Abundance Estimate WG (physical)** • WG on Harp and Hooded Seals (physical)?	**WG and WS meetings:** • WG on bearded seals • WS on age estimation • WS on multispecies models
Other: • MINTAG StG: online & physical meetings • MINTAG: deployment field work and analysis	**Other:** • MINTAG StG: online & physical meetings • MINTAG: deployment field work and analysis • SMM workshop on tagging (October)	**Other:** • MINTAG StG: online & physical meetings • MINTAG: analysis • MINTAG end workshop
Participation (no organisation): • North Atlantic KW WS during Killer Whale Symposium • Trans-Atlantic tagging initiative during ECS-WS pilot whale (May 2025)? • **ECS-WS pilot whale (May 2025)**	**Participation (no organisation):**	**Participation (no organisation):**

18. BUDGET 2024–2025

The 2024 SC budget for inviting external experts to WG meetings was initially NOK 222,000. After reallocation, it was reduced to NOK 150,000. The 2024 actual expenses were under budget and amounted to NOK 119,071. The SC external expert budget for 2025 and draft budget for 2026 adopted by the Council in March 2024 were, respectively, NOK 295,000 and NOK 155,000.

The budget and accounting for the NASS 2024 and MINTAG projects are kept separate from those of the SC. They are therefore not included in the amounts above.

The Secretariat will propose modifications to the future budget according to the revised workplan.

19. ANY OTHER BUSINESS

19.1. ELECTION OF CHAIR AND VICE-CHAIR

Rosing-Asvid's term as Chair of the SC will end at the closure of the 32nd Council Meeting in 2025. An election was held for the new SC Chair and Vice-Chair. Granquist (Iceland) was elected as the new SC

Chair, and Norway was elected to hold the new Vice-Chair position. The Norwegian delegation will select a member in the coming weeks. The SC congratulated Granquist on her new role.

20. REVIEW OF REPORT

A draft report was accepted by the SC before the close of the meeting on January 24. The final report was accepted by correspondence on February 6.

21. MEETING CLOSE

The Chair thanked all the participants for their active input to the discussions. The members of the Secretariat were commended for their thorough work both in preparation for and during the meeting. In addition, the members of the SC thanked Leonard and Frie for joining and Japan for participating.

The SC thanked Rosing-Asvid for leading the meeting and applauded him for three phenomenal years as SC Chair.

The meeting was closed at 15:57 CET on Friday January 24, 2025.

REFERENCES

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Planque, B., Bas, L., Biuw, M., Blanchet, M. A., Bogstad, B., Eriksen, E., Drouineau, H., Hansen, C., Husson, B., Mousing, E. A., Mullon, C., Pedersen, T., Skogen, M. D., Slotte, A., Staby, A., & Lindstrøm, U. (2024). A food-web assessment model for marine mammals, fish, and fisheries in the Norwegian and Barents Seas. Progress in Oceanography, 103361. https://doi.org/10.1016/j.pocean.2024.103361

APPENDIX 1: AGENDA

1. **Welcome from the Chair & Opening Remarks**

2. **Adoption of Agenda**

3. **Appointment of Rapporteurs**

4. **Review of Available Documents and Reports**
   - 4.1. National and annual progress reports
     - 4.1.1. Updates from observers
   - 4.2. Working group reports
   - 4.3. Other reports and documents

5. **Updates from Council**
   - 5.1. General comments
   - 5.2. Endorsed SC work plan

6. **Work procedures**
   - 6.1. Recommendations and Proposals—clarifying definitions
   - 6.2. Following up on Recommendations forwarded to Parties and to scientists
   - 6.3. Dealing with stalled Requests

7. **Interactions with other organisations**
   - 7.1. ASCOBANS
   - 7.2. Arctic Council and working groups
   - 7.3. ICES
   - 7.4. IWC

8. **NAMMCO Website**
   - 8.1. Website Updates & Species Pages (R-1.8.3)

9. **Environmental/Ecosystem Issues**
   - 9.1. Marine mammal / Fisheries interactions
     - 9.1.1. Review and status of active requests (R-1.1.5)
     - 9.1.2. By-Catch Working Group
   - 9.2. Multi-species approaches to management
     - 9.2.1. Review and status of active requests (R-1.2.1)
   - 9.3. Environmental issues — Updates

10. **Working Group on Genetics**

11. **Seals & Walrus Stocks – Status and Advice to the Council**
    - 11.1. Bearded seal
      - 11.1.1. Review and status of active requests (R-2.7.1)
      - 11.1.2. Updates

11.2. Ringed seal
11.2.1. Review and status of active requests (R-2.3.3)
11.2.2. Updates

11.3. Harbour and Grey seals
11.3.1. Recommendations from the Working Group on Genetics
11.3.2. Updates
11.3.3. Plans for WG in 2026

11.4. Harp and Hooded seals
11.4.1. Review and status of active requests (R-2.1.9)
11.4.2. Plans for next WGHARP
11.4.3. Updates
11.5. Walrus
11.5.1. Updates
11.5.2. Plans for WG in 2026

12. Cetacean Stocks – Status and Advice to the Council
12.1. Narwhal
12.1.1. Review and status of active requests (R-3.4.15)
12.1.2. Recommendations from the Working Group on Genetics
12.1.3. Plans for Joint NAMMCO-JCNB Working Group
12.1.4. Updates

12.2. Beluga
12.2.1. Review and status of active requests (R-3.4.16)
12.2.2. Recommendations from the Working Group on Genetics
12.2.3. Plans for Joint NAMMCO-JCNB Working Group
12.2.4. Updates

12.3. Harbour porpoise
12.3.1. Tasks prior to 2026 Working Group meeting
12.3.2. Updates

12.4. Dolphins
12.4.1. Review and status of active requests (R-3.9.6)
12.4.2. Recommendations from the Working Group on Genetics
12.4.3. Updates

12.5. Pilot whale
12.5.1. Review and status of active requests (R-3.8.6)
12.5.2. Recommendations from the Working Group on Genetics
12.5.3. Plans for Pilot Whale Working Group in 2025
12.5.4. Updates

12.6. Northern bottlenose whale
12.6.1. Review and status of active requests (R-1.7.11)
12.6.2. SC Review of available information
12.6.3. Updates
12.7. Beaked whales — Updates

12.8. Blue whale — Updates
12.9. Bowhead whale — Updates
12.10. Common minke whale — Updates
12.11. Fin whale — Updates
12.12. Humpback whale — Updates
12.13. Killer whale — Updates
12.14. Sei whale — Updates
12.15. Sperm whale — Updates

13. NASS 2024 Post-survey Report
13.1. Survey outcomes and evaluation
13.2. Plans for Abundance Estimates Working Group

14. Collaborative projects
14.1. MINTAG Project
14.2. Cooperation with Japan
14.2.1. Northeast Atlantic–Northwest Pacific Ecosystems
14.2.2. Further collaboration
14.3. Other collaborations

15. Management Procedures
15.1. Review and status of active requests (R-1.6.8)
15.2. Defining management units
15.3. Stock status summary for managers

16. NAMMCO Scientific Publications Update

17. Future Workplans

18. Budget
18.1. Results 2024
18.2. Budget 2025–2027

19. Any Other Business

20. Review of Report

21. Meeting Close

APPENDIX 2: LIST OF PARTICIPANTS

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APPENDIX 3: LIST OF DOCUMENTS

Participants have access to password protected documents via the NAMMCO website.

Working Documents

Doc. number	Name/Description	Agenda item
SC/31/01a	Draft Agenda	All
SC/31/01b	Draft Agenda Annotated	All
SC/31/02	Draft List of Participants	1
SC/31/03	Draft List of Documents	4
SC/31/04	List of Active and All Requests from Council to SC	Several
SC/31/05	Report of the Working Group on By-Catch	9.1.2
SC/31/06	Report of the Working Group on Genetics	Several
SC/31/07rev	Report of the MINTAG Steering Group 2024	14.1
SC/31/08	Report of NASS 2024 Scientific Planning Committee	13
SC/31/09	NAMMCO website species pages for review: Harbour Porpoise	8
SC/31/10	NAMMCO website species pages for review: Harp Seal	8
SC/31/11	NAMMCO website species pages for review: Hooded Seal	8
SC/31/12	NAMMCO website species pages for review: Minke Whale	8
SC/31/13	Species Common Names	8
SC/31/14	Initial Analysis of Abundance of Bearded Seal in eastern Baffin Bay	11.1
SC/31/15	Stabilisation of the abundance of bowhead whales in West Greenland	12.9
SC/31/16	Analysis of whale survey in West and East Greenland 2024	13.1
SC/31/17	Update on SC Working Group Budget	18
SC/31/18	TrACK System for stock status categorisation	15.3
SC/31/19	Recommendation definitions	6
SC/31/20	Long-finned pilot whale progress tracker	12.5
SC/31/20	Report from the 2023 ICES – NAMMCO activities	7
SC/31/21	Report from the 2023 ICES – NAMMCO activities	7
SC/31/22	Draft Report of the Working Group on Abundance Estimates	13.2

For Information Documents

Doc. number	Name/Description	Agenda item
SC/31/FI01a	ICES Meeting Etiquette	All
SC/31/FI01b	ICES Code of Conduct	All
SC/31/FI02	National Progress Report 2023 – Faroe Islands	4
SC/31/FI03	National Progress Report 2023 – Greenland	4
SC/31/FI04	National Progress Report 2023 – Iceland	4
SC/31/FI05	National Progress Report 2023 – Norway	4
SC/31/FI06	Small Cetaceans Progress Report 2023 – Japan	4
SC/31/FI07	Large Cetaceans Progress Report 2024 – Japan	4
SC/31/FI08	MINTAG Report April 2024	14.1
SC/31/FI09	MINTAG Report October 2024	14.1
SC/31/FI10	MINTAG Report January 2025	14.1
SC/31/FI11	Telemetry Progress Report - Japan	4
SC/31/FI12	Long-term assessments and short-term workplans	Several
SC/31/FI13	NAMMCO Report Scientific Committee meeting 30	Several
SC/31/FI14	Population estimate of grey seals in Iceland 2022	11.3
SC/31/FI15	*Koilpillai et al. 2024* Geographic Distribution of North Atlantic Humpback Whales (*Megaptera novaeangliae*) with Fluke Scars Caused by Killer Whales (*Orcinus orca*)	12.12
SC/31/FI16	*Chosson et al. 2024* First documented movement of a humpback whale between the Cape Verde Islands and West Greenland	12.12
SC/31/FI17	*Gose et al. 2024* Population genomics of the white-beaked dolphin (*Lagenorhynchus albirostris*): Implications for conservation amid climate-driven range shifts	12.4
SC/31/FI18	*Campana et al. 2024* Bomb radiocarbon determines absolute age of adult fin whales, and validates use of earplug growth bands for age determination	12.11
SC/31/FI19	*Ruiz-Sagalés et al. 2024* Baleen stable isotopes reveal climate-driven behavioural shifts in North Atlantic fin whales	12.11
SC/31/FI20	*Autenrieth et al. 2023* Genome-wide analysis of the harbour porpoise (*Phocoena phocoena*) indicates isolation-by-distance across the North Atlantic and potential local adaptation in adjacent waters	12.3
SC/31/FI21	*Samarra et al. 2024* Trophic ecology, based on stable isotope values, of long-finned pilot whales (*Globicephala melas*) stranded on the Icelandic coast	12.5
SC/31/FI22	Report of the intersessional work on the NAMMCO-Japan research collaboration on Northeast Atlantic-Northwest Pacific Ecosystem	4
SC/31/FI23	Duke University Marine Geospatial Ecology Lab Data Request	14.3
SC/31/FI24	*Planque et al. 2024* A food-web assessment model for marine mammals, fish, and fisheries in the Norwegian and Barents Seas	9.2
SC/31/FI25	*Frie & Lindstrøm 2024* Exploring the effects of methodological choices on the estimation and biological interpretation of life history parameters for harbour porpoises in Norway and beyond	12.3
SC/31/FI26	Modelling the food web in Icelandic waters	9.2

SC/31/FI27	*McCarthy et al. 2025* Circumpolar Population Structure, Diversity and Recent Evolutionary History of the Bearded Seal in Relation to Past and Present Icescapes	11.1
SC/31/FI28	*Baumgartner et al. 2025* Kinship clustering within an ecologically diverse killer whale metapopulation	12.13
SC/31/FI29	*Taras et al. 2024* Estimating Demographic Parameters for Bearded Seals, Erignathus barbatus, in Alaska Using Close-Kin Mark-Recapture Methods	11.1
SC/31/FI30	*Hamilton et al. 2018* Individual variability in diving, movement and activity patterns of adult bearded seals in Svalbard, Norway	11.1
SC/31/FI31	*Sköld et al. 2024* Genetic methods for estimating the Baltic sea Ringed seal population size	11.2
SC/31/FI32	Bycatch of birds and marine mammals in lumpsucker fisheries 2020-2023. Norwegian Institute of Marine Research, January 2024	11.3
SC/31/FI33	*Mikkelsen et al. 2024* Interannual site fidelity by Svalbard walruses	11.5
SC/31/FI34	*Cubaynes et al. 2024* Walruses from space: walrus counts in simultaneous remotely piloted aircraft system versus very high-resolution satellite imagery	11.5
SC/31/FI35	*Tanabe et al. 2020* Age estimation by DNA methylation in the Antarctic minke whale	12.10
SC/31/FI36	*Goto et al. 2020* A preliminary study of epigenetic estimation of age of the Antarctic minke whale (*Balaenoptera B*onaerensis)	12.10
SC/31/FI37	*Dolman et al. 2024* A review of small cetacean hunts in Greenland	Several
SC/31/FI38	*Garroway et al. 2024* Climate change introduces threatened killer whale populations and conservation challenges to the Arctic	12.13
SC/31/FI39	*Heide-Jørgensen et al. 2024* Evidence of a narwhal (*Monodon monoceros)* summer ground in Nares Strait	12.1
SC/31/FI40	*Pedersen et al. 2024* Feeding and biological differences induce wide variation in legacy persistent organic pollutant concentrations among toothed whales and polar bear in the Arctic	9.3
SC/31/FI41	*Hansen et al. 2024* Abundance and distribution of narwhals (*Monodon monoceros*) on the summering grounds in Greenland between 2007-2019	12.1
SC/31/FI42	Pilot whales (*Globicephala spp.*) in the North Atlantic: review of current knowledge, research gaps, and potential to create a North Atlantic Pilot whale research Network –"NAPNET"	12.5
SC/31/FI43	*Haug et al. 2024* Trophic interactions between common minke whales (*Balaenoptera acutorostrata*) and their prey during summer in the northern Barents Sea	12.10
SC/31/FI44	*Ramirez-Martinez et al. 2024* Distribution and habitat use of deep-diving cetaceans in the Central and North-Eastern North Atlantic	12.6
SC/31/FI45	International Workshop on the Use of Genetic Data for Whales' Stock Identification Purposes. Taiji, 18-22 February 2024	14.2
SC/31/FI46	Presentation on NAMMCO Scientific Publication Journal	16

SC/31/FI47	*Lydersen et al. 2016* A review of Greenland shark (Somniosus microcephalus) studies in the Kongsfjorden area, Svalbard Norway	11.4
SC/31/FI48	*Øigård et al. 2012* Modelling the abundance of grey seals (*Halichoerus grypus*) along the Norwegian coast	11.3
SC/31/FI49	*Nilssen et al. 2019* Diet and prey consumption of grey seals (*Halichoerus grypus*) in Norway	11.3
SC/31/FI50	*Elnes et al. 2024* Temporal and Spatial Distribution of Harbor Seal (*Phoca vitulina*) Risk of Entanglement in Gillnets Along the Norwegian Coast	11.3

APPENDIX 4: STATUS OF COUNCIL REQUESTS

NEW REQUESTS FOR ADVICE

Beluga and narwhal

- To prioritise investigating alternative survey methods and survey frequency for small stocks, with a focus on beluga and narwhal in East Greenland.

Beluga

- To prioritise the collection and analysis of data to improve the understanding of stock structure of beluga whales in East Greenland, which may allow future assessments for this species in this area.

ACTIVE REQUESTS FOR ADVICE CONSIDERED AS ANSWERED BY THE MCS

One request for advice from the SC was considered satisfactorily answered and closed by the Council.

Request R-1.6.8: *To prepare a tentative long-term plan (10–15 years) for the assessments of all the stocks within the remit of NAMMCO.*

ACTIVE REQUESTS FOR ADVICE TO BE REFORMULATED

The Council reformulated four existing requests to the Scientific Committee, as follows.

Bearded seal

Request R-2.7.1: *"To complete its review and assessment of bearded seals ~~no later than 2024~~ when the necessary data become available, and collect and analyse existing information."*

Ringed seal

Request R-2.3.3: *"To complete its review and assessment of ringed seals ~~no later than 2024~~ when the necessary data become available, and collect and analyse existing information."*

Harbour and grey seals

Request R-2.4.2: *"To provide a new assessment of grey seal stocks ~~throughout the North Atlantic~~ in all NAMMCO areas."*

Narwhal and beluga

Request R-3.4.11*: "To update the assessment of both narwhal and beluga, ~~noting that~~ when new data warrant such an exercise."*

APPENDIX 5: PREVIOUS PROPOSALS FORWARDED TO PARTIES

In March 2024, the NAMMCO Management Committees endorsed the following recommendations for research, conservation, and management from the SC, and forwarded them to the Parties.

1. PROPOSALS FOR CONSERVATION AND MANAGEMENT

ALL PARTIES

Harbour and grey seals

- Complete an assessment for coastal seals in each of the NAMMCO member countries as soon as the necessary data are available.

White-sided dolphin

- Considering the low levels of reported catch compared to the estimated population size, a new assessment might be conducted within the standard 5-year period, integrating the 2024 abundance

MULTIPLE PARTIES

White-sided dolphin

- Maintain total removals below 750 white-sided dolphins per year across Greenland, Iceland, and the Faroe Islands.

FAROE ISLANDS

Harbour and grey seals

- Determine management objectives for the grey seal population in line with the NAMMCO precautionary principles.

White-sided dolphin

- Validate the completeness of the Faroese white-sided dolphin catches, focusing on the apparent lack of juveniles in the catch.

GREENLAND

Ringed seal

- Validate catch numbers.

Harbour and grey seals

- According to NAMMCO principles, harbour seal stocks should be at least at 60% of the equilibrium level before any hunting can take place. As the equilibrium level is unknown for all Greenland populations the MSY-level could be used, as it is a close proxy to 60% that can be achieved in a shorter term than the equilibrium level.
- If a harbour seal colony is the closest neighbour to a formerly significant but now abandoned breeding/moulting site, no hunting should be allowed until after the neighbouring breeding/moulting site has been recolonised and an assessment can show a sustainable catch.
- All known harbour seal populations should be allowed to increase.

Walrus

- Consider the advice from the 2018 assessment valid until a new assessment is carried out in 2026.

Narwhal

i) Acknowledging the serious concern regarding the status of narwhal and beluga in East Greenland, as pointed out in the letter of concern by the Scientific Committee,

ii) recognising the importance of issues related to food security in the remote areas in all Management Areas in East Greenland, and

iii) adhering to the 8 precautionary principles adopted by NAMMCO 30,

the MCC **urge** Greenland to implement a management approach to narwhal and beluga stocks in East Greenland aiming at zero quotas, to ensure the long-term sustainability of these stocks.

Beluga

See Narwhal (above).

White-beaked dolphin

- Validate the Greenlandic removals with a special focus on minimising underreporting and estimating struck and lost rates, thus facilitating a full assessment of white-beaked dolphins as soon as possible.

Northern bottlenose whale

- Validate the reported catches of this species, as there appears to be misreporting.

ICELAND

Harbour and grey seals

- Put forward a management plan for both harbour and grey seals, which should include: Re-evaluation of the target population level objective with the new level being based on biological criteria; When setting catch levels, consider total anthropogenic removals (including direct hunt and by-catch); Biennial surveys for both species.
- Make legislation on seal hunting species-specific.
- Continue efforts to reduce by-catch.
- Further develop mitigation measures to reduce anthropogenic disturbances from tourists on harbour seals. Consider restricting access for people to important areas for harbour seals during the breeding period.

NORWAY

Harbour and grey seals

- Management plans should take total anthropogenic removals into account.

2. RECOMMENDATIONS FOR NEW RESEARCH

ALL PARTIES

Bearded seal

- Make efforts to collect more samples and increase coverage for the circumpolar genetic analyses.
- Continue and expand screening for pathogens in bearded seals.

Ringed seal

- Use genetic and telemetry data only from adult ringed seals or nursing pups sampled during the breeding season for population structure studies.
- Conduct partial surveys of ringed seals (as index).
- Ensure that efforts to determine population structure be continued.
- Carry out new studies to gain more insight on correction factors for ringed seal abundance estimates.
- Study the sensitivity of ringed seals to noise, particularly in areas of high ship traffic or tourism activities.

Harbour and grey seals

- Support the development of a Europe wide population model for grey seals through data provision and cooperation.
- Support a joint effort to deliver samples for genetic analysis of grey seals to improve knowledge on population structure and status.

Harp and hooded seals

- Efforts should continue to obtain reproductive samples. These are required for use in the population model.

White-beaked and white-sided dolphins

To deploy satellite tags on both white-sided and white-beaked dolphins, preferably in areas other than the Faroe Islands, to obtain more movement and dispersion data.

FAROE ISLANDS

Harbour and grey seals

- Continue the summer counts for abundance estimations of grey seals, and conduct monitoring of haul-out and breeding sites as well as additional tracking.

White-sided dolphin

- Investigate if there is older (i.e., 1986–1992) existing biological material from the Faroe Islands that could be processed and analysed, and to continue collecting relevant samples to investigate reproduction parameters and age structure.
- Collect eye lenses to explore alternative age-determination methods.
- Collect information from stranded animals, including age, length, and sex data.
- Program satellite transmitters to collect higher resolution dive data at shallow depths to allow aerial survey availability correction factors to be estimated.

GREENLAND

Bearded seal

- Obtain tracking data from bearded seals tagged in Greenland and East Baffin Island to get information on stock structures.
- West Greenland and Melville Bay (key hunting areas) as major priority, to get abundance estimates.

Ringed seal

- Carry out a new survey of the Kangia seals in spring 2024 to get a new abundance estimate and report this to the next SC meeting.
- Monitor selected fjord systems with and without catches to assess the effects of hunting, disturbance, and climate change on ringed seals.
- Collect more telemetry and genetic data southwest of Baffin Island and in Lancaster Sound to delineate the boundary between the management areas west of Greenland.
- Carry out aerial surveys to estimate ringed seal abundances in East Greenland.

Harbour and grey seals

- Continue the monitoring of the three known harbour seal populations, together with local hunters.
- Regularly check on previously used harbour seal breeding/moulting sites.

Narwhal

- Deploy satellite tags on animals supplying the spring hunt in Management Area 1, as well as in Northeast Greenland, to investigate the range of the animals supplying the spring hunt.
- Collect biological samples when available from East Greenland, including areas north of Scoresby Sound, to explore genetic connectivity of different stocks.
- Investigate alternative methods to monitor depleted stocks (e.g., using targeted aerial surveys, passive acoustic monitoring, land-based surveys, mark-recapture, collecting incidental observations).
- Conduct targeted aerial surveys of Kangerlussuaq, Nansen Fjord, southern Scoresby Sound, and other reported aggregation areas during summer of 2026.

Beluga

- Collect incidental observations and biological samples when available, to monitor the occurrence of belugas in East Greenland.

White-beaked dolphin

- Determine the stock identity of white-beaked dolphins in West Greenland, using increased genetic sampling and tagging efforts in Greenland.
- To collect life history and age data from Greenland.

ICELAND

Harbour and grey seals

- Continue efforts to develop population models for both species, assess whether data on biological parameters (e.g., historical population size, changes in carrying capacity over time) from other areas can be used for this, and collect data on biological parameters from Icelandic seals to the extent that it is necessary.
- Continue investigating habitat use of both species using satellite telemetry to help evaluate co-occurrence with fisheries and risk of by-catch.
- Carry out biannual surveys of grey seals.

Harbour porpoise

- Collect data on biological parameters, to facilitate an assessment of the Icelandic stock.

White-beaked dolphin

- Make existing and newly collected biological data (age and reproductive information) from Iceland available for the next assessment.

NORWAY

Harbour and grey seals

- Improve knowledge on by-catches by collecting data on species, genetics, and age by collecting jaws from by-caught seals in the reference fleet.
- Collect data on by-catches in recreational fisheries.
- Conduct further tracking studies of coastal seals along the Norwegian coast, to obtain better knowledge on seal movements.
- Continue efforts to implement the Remote Electronic Monitoring (REM) system on Norwegian vessels to estimate drop-out rates and supplement existing by-catch data.
- Complete the analysis of DNA samples from harbour seal pups in Norway to help determine stock structure and propose more scientifically based management units.

Harp and hooded seals

- Tag more harp and hooded seals in the Greenland Sea and the Denmark Strait, and to reanalyse satellite tagging data from the past for both species.
- New pup aerial survey of harp seals in the White Sea.
- Satellite imaging studies should be undertaken of the White Sea\Barents Sea harp seal population during the pupping season, to suggest possible re-distribution of the seals outside traditional whelping patches.

APPENDIX 6: SC/31 PROPOSALS & RECOMMENDATIONS

Below are Proposals and Recommendations put forward, endorsed, or reiterated by SC/31, grouped by the categories defined in NAMMCO/SC/31/19, and then by the Parties or bodies to which they apply.

PROPOSALS CONCERNING REMOVALS

None.

PROPOSALS FOR CONSERVATION AND MANAGEMENT

All Parties

All species

- Facilitate access to marine mammal density estimates or abundances within the NAMMCO area, in a format suited to the type of risk mapping described in BYCWG report.

Greenland

Dolphins

- *(reiterated from SC/30)* Validate the Greenlandic removals with a special focus on minimising underreporting and estimating struck and lost rates, thus facilitating a full assessment of white-beaked dolphins as soon as possible.

Killer whale

- Verify all killer whale catches every year to ensure accuracy of reporting.

RECOMMENDATIONS FOR RESEARCH WITH IMPLICATIONS FOR THE PARTIES OR FOR NAMMCO

All Parties

Harbour porpoise

- Focus efforts on collecting the necessary data for a full assessment of harbour porpoise stocks in all NAMMCO areas.

Greenland

Ringed seal

- Determine whether there are isolated ringed seal stocks in different fjord systems.

Narwhal

- *(reiterated from SC/30)* Collect biological samples when available from narwhals in East Greenland, including areas north of Scoresby Sound, to explore genetic connectivity of different stocks.

Iceland and Norway

Coastal seals

- Improve knowledge on by-catches with data on species, genetics, and age, by collecting jaws from by-caught seals.

NAMMCO

WG/WS meetings

- Hold a discussion or workshop on alternative survey methods for cetaceans, such as drones, acoustics, genetics, and opportunistic surveys.

RECOMMENDATIONS INVOLVING SHARED STOCKS WITH NON-NAMMCO COUNTRIES

Greenland and Canada

Bearded seal

- Investigate bearded seal movements between West Greenland and Canada to determine if there is a shared stock between the two areas.

RECOMMENDATIONS FOR RESEARCH TO SCIENTISTS

All species

- Focus more effort on generating species distribution models, not just abundance estimates, from survey data.

Bearded seal

- Analyse previous surveys conducted in Melville Bay and the North Water Polynya to provide estimates of bearded seal abundance.

Pilot whale

- Complete the recommendation from the Genetics WG to *"determine population structure at the scale of the North Atlantic"* prior to the meeting of the PWWG in late 2025.

RECOMMENDATIONS PERTAINING TO STOCKS OUTSIDE THE REMIT OF NAMMCO

None.

PROCEDURAL RECOMMENDATIONS

Secretariat

- Improve coordination between the NAMMCO and ICES WGs on by-catch (BYCWG and WGBYC) to share expertise and avoid duplication of work.
- Renew the NSP editorial board to actively guide the journal's direction and streamline the publication process.

MINTAG StG

- Maintain open communication with other research groups involved in tagging to facilitate the deployment of tags.

BYCWG

- For the purposes of quantifying exposure to by-catch risk, explore data that can inform on the year-round distribution or relative abundance of marine mammals.

CSWG, forwarded from Genetics WG

- Sample more harbour seals in Greenland to further investigate putative signals of genetic substructure. This could include analysis of archival samples, in addition to opportunistic sampling of by-caught individuals.
- Sample grey seals from the Faroe Islands to determine if they are a unique population or a part of a larger population in Scotland and/or southeast Iceland.

Dolphins WG, forwarded from Genetics WG

- Conducting range-wide analysis to fill in knowledge and sampling gaps for white-beaked and white-sided dolphins in the western North Atlantic, West Greenland, and East Greenland.

Genetics WG

- Explore more recent demographic history and genetic divergence of narwhals than that presented in 2024 report.

JWG NAMMCO-JCNB, forwarded from Genetics WG

- Generate high-coverage genome data for High-Arctic–West Greenland narwhals to compare with the existing data from the Arctic Canada, to further elucidate population structure across the two regions.
- Conducting more in-depth research into the social structure of narwhal populations, including genetic relatedness and sex-based analyses.
- Conducting additional genetic analysis with more samples and high-coverage genome data of belugas from West Greenland and Canada to confirm (or negate) genetic differentiation.
- Conducting additional genetic analysis with more samples and high-coverage genome data of belugas from the High Arctic to confirm (or negate) genetic differentiation.

NEGWG, forwarded from Genetics WG

- Conducting continuous genetic analysis of any harvested individuals from East Greenland, to determine the proportions of harvested belugas from different genetic stocks.

PWWG, forwarded from Genetics WG

- Determine population structure at the scale of the North Atlantic, and whether this structure is driven geographically or socially by range-wide sampling of family units and single individuals, and keeping exact track of where the samples are sourced.
- Conducting genetic analyses of tagged pilot whales, to compare movement, foraging, and social behaviour with relatedness, genetic structure, diversity, and potential adaptations.
- Initiating a dedicated genetic monitoring program based on archival and newly collected samples from harvested groups in Greenland and the Faroe Islands, as well as in mass stranding events wherever they occur, to determine:
    i. family groupings and social structure,
    ii. putative population of origin,
    iii. the influence of removing entire family units during pilot whale hunts, for instance in terms of genetic diversity, inbreeding levels, mutation load, and standing genetic variation.

WGHARP

- Add request R-2.1.9 *"To investigate possible reasons for the apparent decline of Greenland Sea stock of hooded seals and assess the status of the stock"* as a ToR for the next WGHARP meeting.