



TWENTY SEVENTH MEETING OF THE COUNCIL

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DOCUMENT 04	REPORT OF THE PERFORMANCE REVIEW PANEL
Submitted by	Performance Review Panel
Action requested	Take note Make suggestions for follow up process
Background	<p>At its 25th Annual Meeting, NAMMCO Council agreed to undertake a Performance Review of the Organisation and adopted a process, specifying the Objectives of the Review, Terms of Reference, selection of the Review Panel, assessment criteria, procedure and administration.</p> <p>The Performance Review Panel should be composed of external experts, non-nationals of and non-residents of any NAMMCO member countries to ensure objectivity and neutrality. Council agreed to ask FAO, IWC, and NAFO to nominate one expert each to the panel.</p> <p>The following document is the report of the Performance Review Panel</p>



NAMMCO Performance Review

Report

February 2019

EXECUTIVE SUMMARY

Background

At its 25th Annual Meeting in 2017, the North Atlantic Marine Mammal Commission (NAMMCO) agreed to undertake a Performance Review of the organization. Objectives of the review, terms of reference for the Review Panel and review criteria were specified. The review criteria were based on the "Kobe Criteria for Reviewing the Performance of RFMOs" and amended to reflect NAMMCO's mandate and membership.

The United Nations Food and Agriculture Organization (FAO), the International Whaling Commission (IWC) and the Northwest Atlantic Fisheries Organization (NAFO) were each asked by NAMMCO to nominate a member of the Performance Review Panel. The members of the Panel are: Dan Goodman, FAO nominee, Caterina Fortuna, IWC nominee and chair of the Panel and Russell Smith, NAFO nominee.

The NAMMCO Council established that *'the review shall give special emphasis to the objective of the Commission reflected in the NAMMCO Agreement, which is to contribute through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic'*.

The Terms of Reference (ToR) of the Performance Review were:

- To assess the performance of NAMMCO since July 1992 (the date when the Agreement came into force) against the objectives set out in the Agreement and any other relevant international instruments addressing the conservation and management of marine mammals or living marine resources relevant to marine mammals.
- To assess the performance of the Parties of NAMMCO in following the recommendations and proposals of NAMMCO in terms of conservation and management, hunting methods and inspection and observation.
- Consideration should be given to developments in ocean management, monitoring techniques and technical development that have taken place during the period covered by the review.

The Panel assessed the performance of NAMMCO against its overall objectives and 47 detailed criteria established under 7 general areas: conservation and management, hunting activities, compliance and enforcement, decision making, international cooperation, financial and administrative issues and, outreach.

While this report focuses largely on the collective work of the Faroe Islands, Greenland, Iceland, and Norway as NAMMCO, there are portions of the report where the Panel examines the individual performance of one or more members. The Panel's comments and recommendations have been made with a constructive intention, to help Member Countries identifying critical aspects that can be improved or to highlight their strength for the benefit of other Member Countries. Significant differences among the members means that comparisons of their individual performances are not meaningful and should not be made.

These differences include attributes such as: (a) the length of the coastline from which marine mammals are hunted; (b) the number of different species of marine mammals that are hunted; (c) the number of different hunts; (d) the number of people dependent on hunting marine mammals for their livelihood; (e) the importance of marine mammals as a

source of food; (f) the size of the economy and national budgets devoted to relevant issues; and (g) the per capita income of those harvesting marine mammals. All of the members share NAMMCO's commitment to ensure the sustainable management of the marine mammals in the North Atlantic. The attributes identified above, and others, have an influence on what is possible with respect to implementing that commitment. In particular, differences such as the number of species of marine mammals hunted have resulted in more discussion about hunting in the jurisdiction of some NAMMCO Members. This is not a reflection on their performance.

The Panel applied three methods to collect evidence: (a) a questionnaire, (b) in-person and Skype interviews, and (c) a review of official documents including documents on the NAMMCO website and documents prepared for the Panel by the Secretariat. For each of the detailed criteria the Panel compiled a background section. These were sent to the NAMMCO Members and the Secretariat for fact checking.

To guide its work, the Panel developed a *modus operandi* inspired by the methodology of the Multilateral Organization Performance Network 3.0 (MOPAN 3.0). MOPAN 3.0 was adopted for this process because it is a well-respected process that the Panel believed would provide a general framework for a high-quality review of performance.

For the survey, respondents were asked to complete a multiple-choice questionnaire reflecting the criteria adopted for this Performance Review. The survey was sent to 132 potential respondents that included; NAMMCO Councillors and other representatives of Member Countries, Chair's (present and past) of NAMMCO Committees, members of the Scientific Committee, past and present NAMMCO Secretariat staff and, representatives of observers, including non-Member Countries, relevant Intergovernmental Organizations (IGOs) and Non-Governmental Organizations (NGOs), external experts and, journalists, and some parliamentarians.

The perception data obtained from the survey respondents increased the value of the documentary review by providing additional insights into their evaluations of all aspects of NAMMCO'S performance.

The Panel also carried out substantive interviews with key NAMMCO officers, staff and stakeholders. These interviews helped to deepen the Panel's understanding of the information collected in the document reviews and the survey.

Is NAMMCO meeting its overall objectives?

In order to evaluate if NAMMCO is meeting its overall objectives, the Panel took note of the shared vision and objectives of NAMMCO set out in the preamble to the Agreement, the statement on the role of NAMMCO on the website and, the Nuuk Declaration, (a statement issued by the members of NAMMCO to mark the 25th Anniversary of the organization).

In this regard, the Panel **finds** that the Commission is meeting its continuing overall objective as it is contributing "*through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic.*" In addition, the Commission is meeting the variety of goals identified in the Preamble to the Agreement that can be seen as related to the overall objective of the Agreement.

Has NAMMCO adopted a clear strategic direction?

Another additional criteria adopted by the Panel focuses on whether NAMMCO has identified and adopted a clear strategic direction and done the planning and put in place

the mechanisms that will allow it to attain its goals. In this regard, the Panel **concludes** that while NAMMCO has performed well, there is room for improvement. The Panel **makes** a number of specific recommendations and suggestions on how the Commission could improve various aspects of its performance (see Chapter 3 Compendium of Recommendations and Conclusions of the Panel). In particular, the Panel **recommends** that NAMMCO develop and implement a Strategic Plan to help it focus its efforts and better guide decision-making across the organization. At the same time, the Panel **believes** that NAMMCO should consider developing clearer operational guidelines related to working methods of all NAMMCO subsidiary bodies.

In developing its Strategic Plan, the Commission will need to clearly define its objectives, priorities and long and short-term goals for the organization in a context that includes relevant resource issues such as Secretariat and Member staffing and funding. In addition, it should also include a mechanism for the regular review of whether these goals have been attained or whether the organization is still on the path for achieving them. Also, it should provide for periodic consideration of whether these goals continue to be the right ones. The Panel **believes** that, if properly implemented, the on-going SWOT analyses of the Council, its subsidiary bodies and the Secretariat will provide useful input into the Strategic Plan. As a public institution, NAMMCO should develop its Strategic Plan as transparently as possible and invite the participation of all relevant stakeholders in the process.

The Panel **encourages** the Commission to consider recommendations included throughout this report when developing its Strategic Plan. Some of the broad issues to be addressed should include: i) explicitly defining the geographical scope of the application of the Agreement including whether it extends beyond the EEZs of member countries; ii) consider expanding NAMMCO membership to include other countries bordering the North Atlantic that harvest marine mammals; iii) identifying and prioritizing the stocks to be managed by NAMMCO; iv) securing sufficient resources to allow the Commission to meet its goals; and, v) strengthening the capacity of the Secretariat to support the work of the Commission.

The following sections provide some of the background information and some of the recommendations. Many of these relate to science as that is central to the work of NAMMCO.

Conservation and management

With respect to conservation and management, the Panel **notes** that a total of 65 populations or subpopulations of cetaceans and 34 of pinnipeds have been considered by the NAMMCO Scientific Committee in the context of attempting to assess their status.

The Panel **raises** a number of issues related to how information about species and stocks is reported, reviewed and updated on the website and **recommends** that some stocks be reconsidered.

With regard to the available information on abundance and trends of cetaceans and seals, the Panel **notes** with concern that hunts still occur on populations (a) for which abundances are identified as “declining” (10 populations), or of “unknown size and trend” or “unknown trend” (8 populations) or (b) for which only a single abundance estimate has been obtained (16 populations) or (d) that are classified as of “unknown size” but assessed as “increasing” or “stable”. Depending on the level of catches and the rate of decline or the uncertainty of the ‘guess estimate’ on their actual abundance, permitting hunting for these stocks may not be precautionary. The Panel **recommends** that all these cases be fully reconsidered as a matter of priority to (a) confirm that hunts are sustainable, (b) solve all inconsistencies and

(c) produce all necessary data that can confirm or otherwise that hunts do not harm these stocks.

Since its inception, NAMMCO has shown an interest in applying the 'Ecosystem approach' to management. However, given the complexity of the matter, very little progress has been made. This is a trait common to other IGOs and international scientific bodies (e.g. IWC, Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), etc.).

The Panel **makes** a number of comments on the importance of NAMMCO's work on monitoring and reporting of bycatch, struck and lost animals, strandings and ship strikes. In this regard, and together with NAMMCO's work on stock assessments and catch reporting and verification, the Panel **believes** that NAMMCO has served as an important mechanism for improving the collection and sharing of data on marine mammals in the region.

The Panel **notes** that there are gaps in many aspects of data collection related to marine mammal hunts in NAMMCO Member Countries and that these are of varying significance. Important gaps were identified in several other areas, including bycatch data collection and reporting, species distribution, abundance and stock structure. Given limited budgets, the Panel **recommends** that the Council, on a regular basis, review priorities given to addressing identified gaps in data collection.

The Panel **is of the view** that a centralized database on stock assessments (abundance & removal data) and for the evaluation of trends in hunters' safety and hunting efficiency is fundamental to providing repeatability and consistency in analyses and **recommends** that NAMMCO develops such a database as soon as possible. It also **recommends** development of a procedure that specifies, among other things, the level of accessibility to data within and outside NAMMCO, the data quality control process, and deadlines for data submission, among other things.

The Panel further **notes** that the scientific output of NAMMCO has positively evolved throughout NAMMCO's history and that the advice received from the Scientific Committee is of good quality.

The Panel also **notes** that the current process regarding the flow of scientific and technical advice within NAMMCO has the potential to create some issues and that NAMMCO might need to refine existing working methods to avoid overlaps or conflicts between Committees that may undermine the role and work of other Committees.

In the **view of the Panel**, NAMMCO and its members have recognized the importance of trying to adhere to at least some of the elements of the precautionary approach as that approach is set out in the UN Fish Stocks Agreement. However, the Panel **believes** that effort in support of one significant component of the precautionary approach is largely missing: the development of stock-specific reference points and associated management actions that will be automatically taken if a reference point is exceeded. Therefore, the Panel **strongly recommends** that NAMMCO initiate work to determine how it can better support its members in using this tool in the management of marine mammal resources.

The Panel **finds** that NAMMCO members have, for the most part, adopted the conservation and management measures proposed by the Commission, although there have been some instances in which they have not. For purposes of transparency and maintaining the credibility of the organization, the Panel **believes** that it is imperative that instances of not implementing NAMMCO advice should be minimized, or even better, eliminated.

Hunting Activities

The Panel **is of the view** that NAMMCO has given a high priority to and expended considerable human and financial resources on its work on safety, efficiency and animal welfare issues in all hunting activities under its purview and that outputs from the Committee on Hunting Methods, including those from the workshops and Expert Group Meetings, have been substantial and significant.

The Panel **is of the view** that NAMMCO has addressed issues related to hunting methods in a comprehensive manner and produced the important advice on hunting methods covering the hunts of all of its members. Inclusion of experts in a broad range of subjects from both NAMMCO member countries and non-member countries and the incorporation of traditional and local knowledge from hunters has resulted in advice from the Expert Group meetings and workshops that is practical and scientifically and technically based.

The Panel **is of the view** that the work of the Committee on Hunting Methods together with the approval of its recommendations by the Council and implementation of most of these recommendations by member countries is one of the key elements that have made NAMMCO a credible organization. Transparency about how NAMMCO members intend to respond to recommendations will help to sustain the goodwill and credibility that NAMMCO has earned because of its work on hunting.

Compliance and enforcement

The Panel **finds** evidence that NAMMCO members have adopted legislation and regulations to implement NAMMCO advice as appropriate. The Panel recommends that relevant legislation and regulations be updated consistent with any new advice from the Committee on Hunting Methods.

The Panel **is concerned** that the Observation Scheme does not provide benefits that are commensurate with its costs. Therefore, the Panel **recommends** that the Council use the on-going review of the NAMMCO Observation Scheme as a catalyst for reform.

Decision-making

The Panel **notes** that resource users have been involved in NAMMCO decision-making in many ways. NAMMCO has also made important efforts to understand, and to the extent appropriate make better use of, user knowledge in the work of the Scientific Committee and in management decision-making. The Panel **encourages** NAMMCO to consider, in the process of developing a Strategic Plan, how it might appropriately expand the role of user knowledge in its work.

The Panel **also notes** that throughout the review process it heard comments about language barriers created by the fact that NAMMCO works in English and recommends that the Commission consider whether there are viable ways to reduce or remove this barrier, including through the use of technology.

The Panel **is of the view** that participation of observers at meetings of the Council and its subsidiary bodies is an important part of NAMMCO's transparency, accountability and credibility and that its related rules are consistent with the Agreement and reasonable.

With regard to documents, the Panel **is aware** that there is a considerable volume of material related to the functioning of the organization, including meeting documents, on NAMMCO's website. The Panel **is of the view** that much, if not all of the material on the NAMMCO website and documents prepared for the Panel do not require access protection and **recommends** that this matter be reviewed with a view to increasing transparency.

The Panel **also notes** that there are other issues related to NAMMCO's use of password protection for some of its documents including the fact that there are no rules or guidelines that describe who and under what conditions passwords can be obtained as well as the lack of rules or guidelines related to how documents are determined to be publicly available or password protected. The Panel **recommends** that these issues be specifically addressed as part of the review recommended in the previous paragraph.

Given the above comments, the Panel **considers** that NAMMCO's transparency requires improvements.

International cooperation

The Panel **believes** that NAMMCO has made a reasonable effort to facilitate the cooperation with non-NAMMCO parties, but that some renewed effort could be made to increase the number of NAMMCO Members.

The Panel **is of the view** that NAMMCO's effort to cooperate with other relevant international organizations is significant and recommends that such efforts be continued and continually reviewed on an individual activity basis to assess the benefits of such efforts.

As with activities of the Scientific Committee, the Panel **recommends** that postponement or reductions of continuing such efforts to cooperate with other relevant organizations should not be an ongoing solution to budget shortfalls.

The Panel **recommends** that effort to cooperate with other international organizations continue and that NAMMCO considers the possibility to elaborate formal Memoranda of Understanding on relevant scientific and technical aspects. Cooperation with other relevant international organization should also be part of the NAMMCO strategic plan.

Financial and administrative issues

The Panel **notes** the apparent contradiction between the priority given to communications and outreach and the agreed substantial budget cuts for this activity. The Panel believes that the substantial cuts to the budget for communications and outreach activities will certainly not advance NAMMCO's credibility in the view of other Arctic and North Atlantic organizations.

The Panel **notes** that in adopting its budget for 2018, the Council decided to postpone some activities of the Scientific Committee for one year and is of the view that implementation of such postponements should be done in a manner that avoids or minimizes any negative effects to the outputs and credibility of the Scientific Committee, which is a key element of NAMMCO's overall credibility.

The Panel **is of the view** that such postponement, particularly with regard to high priority issues should not be an ongoing solution to budget shortfalls.

The Panel **is concerned** about some of the recent personnel decisions made with respect to the staff of the Secretariat. It was surprised that the newly-hired Scientific Secretary is a person with no experience with NAMMCO or any aspects of marine mammal science including estimating population abundance and animal welfare. The Panel **is also concerned** that the new Scientific Secretary's lack of experience with marine mammal assessments will not be helpful for assisting the Scientific Committee's required work on assessment. The Panel **considers** that this will do nothing to increase the perception of NAMMCO's credibility as a forum for the conservation and management of marine mammals in the Arctic and Northern Atlantic.

The Panel **also notes** that the hiring of a Scientific and Communication Assistant might not be sufficient to implement NAMMCO's Communication plan. Given that communications and outreach receives the largest allocation of NAMMCO's program elements and the fact that communications and outreach activities are an essential component of establishing NAMMCO's credibility, NAMMCO should consider hiring someone with extensive experience and expertise in communications.

The Panel heard a number of other comments and suggestions concerning the need for restructuring the Secretariat and **suggests** that these should be considered by the Finance and Administration Committee and the Council, informed by a SWOT analysis for the Secretariat. A SWOT analysis of the Secretariat should include a review of the Staff Rules for the Secretariat and, the issue of restructuring the Secretariat should be part of the development of a strategic plan.

The Panel also **suggests** that given the Council's appropriation of a high priority to using the website for communications and outreach activities, a review be undertaken to determine if the current outsourcing of work related to the NAMMCO website is the best and most cost effective way of achieving this.

With regard to the cuts that were made in all budget items for 2018 and 2019 the Panel **notes** the explanation that one reason for these cuts was the funding was required for relocation of the Scientific Secretary and hiring of a new Scientific Secretary. The Panel **is of the view** that a separate fund should have been previously established to cover such inevitable costs and that funding for such costs should not come from cuts to regular program components. This is simply poor budget planning.

The Panel **is of the view** that a centralized database on stock assessments (abundance & removal data) and for the evaluation of trends in hunters' safety and hunting efficiency, is fundamental to providing repeatability and consistency in analyses and recommends that NAMMCO develops such a database as soon as possible.

Outreach

The Panel **considers** that the description of NAMMCO presented on the website represents a clearly articulated message of NAMMCO's goals and that NAMMCO has developed, maintained and disseminated clear overall messages that have been broadly disseminated. This has provided valuable material for NAMMCO's efforts to increase its visibility, enhance its outreach efforts and increase the public understanding of the issues related to the conservation and management of marine mammals in the North Atlantic.

The Panel **concurs** that the Council priority for updating the website and its use are appropriate. It **recommends** that the Council develop and implement quantifiable measures to monitor the effectiveness of its website beyond simply noting the number of hits.

The Panel **notes** that the Communication and Outreach Strategy is important for the work of NAMMCO. However, a "major review" of the Communication and Outreach Strategy outcomes was to be carried out in April 2018, but has not occurred. The Panel **recommends** that the Council complete the planned review the Communication and Outreach Strategy, in the context of the overall NAMMCO Strategic Plan.

The Panel **is of the view** that the outputs from the NAMMCO Scientific Committee are substantial and substantive. Together with its National Progress Reports, its organization of conferences/symposia, workshops and Expert Working Groups, its cooperation with other relevant organizations and the outputs from the Management Committees and the Committee on Hunting Methods have made NAMMCO a preeminent and credible forum

for the discussion on conservation and management of marine mammals in the Arctic and Northern Atlantic regions.

It is the Panel's view that NAMMCO has attained a level of credibility among other organizations involved with Arctic issues and marine mammal conservation and that with respect to outputs from the Scientific Committee, the Committee on Hunting methods and recommended regulatory measures with respect to sustainable management of marine mammals across the North Atlantic its work is valued, relied upon and sought.

The Panel **recommends** that at a minimum, cooperation and collaboration with other organizations involved with the conservation of marine mammals and Arctic issues be maintained at current levels and that if budget decisions allow, efforts to increase opportunities for such cooperation and collaboration be pursued.

Additional details related to the Panel's recommendations are in the compilation that is Chapter 3 of this report.

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ACRONYMS

AC	Arctic Council
ACCOBAMS	Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area
AEWG	Abundance Estimates Working Group
AWMP	Aboriginal Subsistence Whaling Management Procedure
BYCELS WG	Working Group on By-catch, Entanglements and Live strandings
BYCWG	By-catch Working Group
CAFF/CBMP	Conservation of Arctic Flora and Fauna/Circumpolar Biodiversity Monitoring Program of the Arctic Council
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CHM	Committee on Hunting Methods
CMS/ASCOBANS	Convention on Migratory Species/Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas
CRF	Coastal Reference Fleet
FAO	United Nations Food and Agriculture Organization
FIRMS	Fishery and Resources Monitoring System of FAO
GINR	Greenland Institute of Natural Resources
GROM	Global Review of Monodontids
ICC	Inuit Circumpolar Conference
ICES	International Council for the Exploration of the Sea
IFAW	International Fund for Animal Welfare
IGOs/GOs	Intergovernmental Organizations/Governmental Organizations
IMR	Norwegian Institute of Marine Research
IWC	International Whaling Commission
JCNB	Joint Commission for the Conservation and Management of Narwhal and Beluga
KNAPK	Kalaallit Nunaanni Aalisartut Piniartullu Kattuffiat
MCC	Management Committee for Cetaceans
MCJ	Joint Meeting of the Management Committees
MCSW	Management Committee for Seals and Walrus
MFRI	Icelandic Marine and Freshwater Research Institute
MMFI	Working Group on Marine Mammal & Fisheries Interactions
MML/NOAA	Marine Mammal Laboratory, U.S. National Oceanographic and Atmospheric Administration
MoU	Memorandum of Understanding
MSFD	EU Marine Strategy Framework Directive
NAFO	Northwest Atlantic Fisheries Organization
NAMMCO	North Atlantic Marine Mammal Commission
NASS	North Atlantic Sighting Surveys
NEAFC	North East Atlantic Fisheries Commission
NGO	Non-Governmental Organizations
NTI	Nunavut Tunngavik Incorporated
PRP18-RC#	Performance Review Panel's Recommendation and/or Conclusion - <i>number</i>
QSR	Quality Status Report of OSPAR
RFMO	Regional Fisheries Management Organizations
RMP	Revised Management Procedure
S&L	Struck and Lost
SAMBR	State of the Arctic Marine Biodiversity Report
SEAFO	South East Atlantic Fisheries Organization
T-NASS	Trans North Atlantic Sighting Survey
TTD	Time-to-Death
UI	University of Iceland
UiT	University of Tromsø
WGBYC	ICES Working Group on Bycatch of Protected Species
WGMME	ICES Working Group on Marine Mammal Ecology
WKOSBOMB	Joint Workshop on Observation Schemes for Bycatch of Mammals and Birds
WWF DK	World Wildlife Fund-Denmark

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CHAPTER 1 - BACKGROUND, MATERIALS AND METHODS

1. HISTORY OF THE PERFORMANCE REVIEW

At its 25th Annual Meeting, the North Atlantic Marine Mammal Commission (NAMMCO) Council agreed to undertake a Performance Review of the organization (NAMMCO 2017¹ point 2.1.3) and adopted a review process². This included: (a) Objectives of the Review, (b) Terms of Reference for the Review Panel and (c) specific Review criteria (Appendix 1), based on the “Kobe Criteria for Reviewing the Performance of RFMOs” and amended to reflect NAMMCO’s mandate and membership.

1.1 Members of the Review Panel

NAMMCO Council agreed that the Performance Review Panel should be composed of external experts, non-nationals of and non-residents of any NAMMCO member countries to ensure objectivity and neutrality.

The United Nations Food and Agriculture Organization (FAO), International Whaling Commission (IWC) and Northwest Atlantic Fisheries Organization (NAFO) were asked by NAMMCO each to nominate a member of the Performance Review Panel. The members of the Panel were:

- Dan Goodman, FAO nominee, is a Canadian citizen residing in Japan and has a background as a biologist. He is employed by the Fisheries Agency of Japan and is also a Counsellor at the Institute of Cetacean Research in Tokyo. Goodman is one of the primary drafters of the 1990 Memorandum of Understanding establishing the North Atlantic Commission (NAC) and the 1992 Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic (NAMMCO). He served as Canadian observer to meetings of NAMMCO 1992-1997 and as Japan’s observer to meetings of NAMMCO in the period 2000-2009.
- Caterina Fortuna, IWC nominee, is an Italian citizen and has a background as marine biologist. She currently holds a permanent position as Researcher at the Italian National Institute for Environmental Protection and Research (ISPRA). She has 25 years of experience in the field of cetacean research, conservation and management. Her scientific expertise includes abundance estimation and population assessment of cetaceans, sea turtles and elasmobranchs. Fortuna is a member of IWC Scientific Committee since 2001 and currently serves as Chair of the Scientific Committee (2015-2018). She acts as Chair of the Panel.
- Russell Smith, NAFO nominee, is a U.S. citizen and has a background as a lawyer. He has worked both in private practice in the USA and later for the U.S. government, including for the Department of Justice and the Office of the U.S. Trade Representative where he focused on international environmental and trade issues, among other things. His most recent position was as Deputy Assistant Secretary for International Fisheries at the National Oceanic and Atmospheric Administration. While in that position he oversaw the development and implementation of U.S. policy on international fisheries and served

¹ NAMMCO. 2017. Report of the 25th Meeting of the Council, April 2017, Nuuk, Greenland.

² http://nammco.wpengin.com/wp-content/uploads/2017/03/22-nammco-25_performance-review-1.pdf.

as the U.S. Commissioner for the International Commission for the Conservation of Atlantic Tuna (ICCAT), the Western and Central Pacific Fisheries Commission (WCPFC), and the International Whaling Commission (IWC).

1.2 Objectives and Terms of Reference

The NAMMCO Council established that '*the review shall give special emphasis to the objective of the Commission reflected in the NAMMCO Agreement, which is to contribute through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic*³.

The objectives of the Performance Review were:

- To assess the performance and accordance of the organization with the NAMMCO Agreement and other relevant international instruments addressing the conservation and management of marine mammals.
- To assess the performance of the Parties in responding to NAMMCO recommendations and proposals.
- To propose ways ahead for areas where improvements are required.

The Terms of Reference (ToR) of the Performance Review were:

- To assess the performance of NAMMCO since July 1992 (the date when the Agreement came into force) against the objectives set out in the Agreement and any other relevant international instruments addressing the conservation and management of marine mammals or living marine resources relevant to marine mammals.
- To assess the performance of the Parties of NAMMCO in following the recommendations and proposals of NAMMCO in terms of conservation and management, hunting methods and inspection and observation.
- Consideration should be given to developments in ocean management, monitoring techniques and technical development that have taken place during the period covered by the review.
- The review should be performed based on the criteria [...] and should point both to achievements as well as areas which could be improved.

1.3 Agreed criteria

On the January 26, 2018, the Council agreed to slightly revised criteria based on suggestions from the Panel. To facilitate reference to specific criteria the Panel has numbered what was originally presented as bullet points. These criteria are set out in Appendix 1.

2. METHODS

To guide its work, the Panel developed a *modus operandi* inspired by the methodology of the Multilateral Organization Performance Network (MOPAN) 3.0⁴. MOPAN 3.0 was adopted for this process because it is a well-respected process that the Panel believed would provide a general framework for a high-quality review of performance.

The NAMMCO Review Panel Terms of Reference and Review criteria constituted the core indicators for the assessment of NAMMCO performance.

³ <https://nammco.no/wp-content/uploads/2016/10/nammco-agreement-with-signatures-and-logo.pdf>

⁴ <http://www.mopanonline.org/ourwork/ourapproachmopan30/>

The Panel applied three methods to collect evidence: (a) questionnaires; (b) in-person or Skype interviews, and (c) a review of official documents.

The NAMMCO Secretariat prepared a number of documents and summary tables to assist the Panel in its analyses.

To arrive at the final assessment, the Panel triangulated evidence obtained from all of the aforementioned tools, in order to validate the data. This triangulation was done by checking the consistency of findings generated by different data collection methods (i.e., questionnaires, commentaries, direct interviews, analyses of official documents, analyses of review documents prepared by the Secretariat). This allowed the Panel to enquire further through the sequential use of different data sources; for example, exploring findings from the document review through additional survey/interview and consultations, especially where diverging results arose (e.g., when the documentary review showed evidence of a particular policy in place and being used, but survey data indicated little knowledge or use of that given policy).

Validation of findings did occur at several points of the process; however, the Panel was careful to avoid overstating the significance of individual responses to interview and survey questions due to the small sample size, differing roles of respondents and views expressed.

2.1. Questionnaire

A survey was conducted in which respondents were asked to complete a multiple-choice questionnaire reflecting the criteria adopted for this Performance Review (Appendix 2). The survey was sent to 132 potential recipients (Appendix 3). The group of potential respondents included NAMMCO Councillors and other representatives of Member Countries, Chair's (present and past) of NAMMCO Committees, members of the Scientific Committee, past and present NAMMCO Secretariat staff, representatives of observers, including non-Member Countries, relevant IGOs and NGOs, external experts, journalists.

Respondents were given the option of providing written commentaries. This type of perception data increases the value of a documentary review by providing insights into stakeholders' evaluations of all aspects of NAMMCO'S performance.

Ad hoc questions were also prepared for external scientific experts, members of the Scientific Committee, chairs of the Committees and representatives of Member Countries (see Appendix 4). Responses to these questions were received either in writing or during interviews.

2.2 Interviews

The Panel carried out substantive interviews with key NAMMCO officers, staff and stakeholders. These interviews helped to deepen the Panel's understanding of the information collected in the document reviews and the survey. See Appendix 4 for questions asked.

The interview process also helped the Panel gain a better understanding of organisational agendas that may have evolved since the publication of reviewed documentation, and to deepen insight into, or refute, initial observations. All interviewees were given the opportunity to complete the survey and provide written responses prior to being interviewed.

2.3. Documents

The main source of material was the NAMMCO website and all of the documents published there, including general policy documents, Rules of Procedure and Staff Rules, Scientific documents, and technical documents. These totalled 260+ documents in PDF and 94 pages of the NAMMCO website not protected by passwords.

In addition, the Secretariat supported the work of the Panel by preparing, on request, 48 substantial documents on various aspects of NAMMCO. Appendix 5 contains the list of these documents with agreed and actual date of delivery. Due to lack of personnel and conflicting commitments - i.e., Council meeting preparation, preparation for recruitment of the new Scientific Secretary, the delay in taking service by this officer (21st October) and assistance to the Panel - several documents were received with significant delay (e.g. the NAMMCO data spreadsheet was expected on June 29, 2018, but the final version was not received until November 8, 2018).

2.4. Additional criteria adopted by the Panel

2.4.1 Framing questions

The Review Panel used the following framing questions and operating principles to structure its discussions and reporting:

- Does NAMMCO have sufficient understanding of the needs and demands it faces in the present and may face in the future, in terms of contributing '*through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic*'?

This should be considered also keeping in mind that the Arctic region is currently subject to major environmental/climate changes.

- Does NAMMCO have access to assets (including human resources) and resources that it needs to achieve its mandate?

This should be considered in relation to the objectives set forth in the Agreement and in relevant international instruments and mindful of the size of the organization.

- Is the organisation using its assets to maximum effect in the present and is it prepared for the future?

This should be considered in relation to the distribution of funding and human resources over themes.

- Are its systems, planning and operations fit for purpose? Is it geared in terms of operations to deliver on its mandate?

This will be considered in relation to the general organisation of the Commission and Secretariat in relation to its main objective ('*to contribute through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic*')

- Is NAMMCO delivering and demonstrating relevant and sustainable results in a cost-efficient way?

This should be addressed by reviewing a list of the major achievements (or issue specific progress) of each of the NAMMCO Committees, a summary of the activities undertaken under the NAMMCO control scheme, a history of the status of the stocks under NAMMCO's jurisdiction/purview, a list or summary of the major actions undertaken by the NAMMCO council related to finance and administration, graphs

illustrating changes in the NAMMCO budget and changes to the allocations of funds, and a chronology of activities undertaken by NAMMCO related to public information/communications.

2.4.2 Key Performance Indicators

To evaluate NAMMCO performance, additional indicators inspired by MOPAN 3.0, were used. Key Performance Indicators (KPI) and sub-KPI, within five specified areas of interest were used as checklists for the Review Panel analyses and report writing. See Appendix 6 for full details.

The five general areas considered were as follows:

- **Strategic management** (has NAMMCO defined a clear strategic direction geared to key functions, intended results and integration of relevant cross-cutting priorities?);
- **Operational management** (are NAMMCO assets and capacities organised behind strategic direction and intended results, to ensure relevance, agility and accountability?);
- **Relationship management** (is NAMMCO engaging in inclusive cooperation and outreach (i.e., with Member Countries, other national and international stakeholders, including relevant Inter-Governmental Organizations) to support relevance, to leverage effective solutions and to maximise results?);
- **Performance management** (is NAMMCO's governance system geared to managing and accounting for results in regional cooperation, marine mammal conservation and management and using performance information (e.g. tracking effectiveness of/enactment on recommendations), including evaluation and lesson-learning?);
- **Results management** (has NAMMCO efficiently achieved relevant, inclusive and sustainable results on conservation and management of marine mammals?).

The following sections summarize all general questions and indicators used to assess each area.

2.4.2.1 STRATEGIC MANAGEMENT

Does NAMMCO have a clear strategic direction geared to key functions (i.e., regional cooperation, conservation/management and research), intended results and integration of relevant cross-cutting priorities?

KPI 1: Organisational architecture and financial framework enable mandate implementation and achievement of expected results.

KPI 2: Structures and mechanisms in place and applied support the implementation of global frameworks for cross-cutting issues at all levels.

These "strategic management" KPI and sub-KPI were assessed against NAMMCO's main objective (Article 2 of the NAMMCO Agreement, which reads "*The objective of the Commission shall be to contribute through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic*"). The Panel also considered the preambular concepts of the Agreement, the recent Nuuk Declaration (2017) and the text contained in the NAMMCO website page titled "About NAMMCO", which helped clarifying the intention of Article 2.

The '*operational architecture*' included '*all human activities and capital resource utilization within a structure of task allocation and coordination to achieve desired outcomes and performance for both the short run and the strategic long run*'.

2.4.2.2 OPERATIONAL MANAGEMENT

Are NAMMCO assets and capacities organised behind strategic direction and intended results, to ensure relevance, agility and accountability?

KPI 3: Operating model and human/financial resources support relevance and agility.

KPI 4: Organisational systems are cost and value conscious and enable financial transparency/accountability.

2.4.2.3 RELATIONSHIP MANAGEMENT

Is NAMMCO engaging in inclusive regional cooperation and partnerships to support relevance, to leverage effective solutions/actions and to maximise results?

KPI 5: Operational planning and intervention design tools support relevance and agility (within partnerships: CGs, NAMMCO Secretariat, other relevant stakeholders).

KPI 6: Working in a coherent regional cooperation network directed at leveraging/ensuring relevance and catalytic use of resources.

2.4.2.4 PERFORMANCE MANAGEMENT

Are NAMMCO systems geared to managing and accounting for results (in conservation and management of marine mammals in the North Atlantic) and the use of performance information, including evaluation and lesson-learning?

KPI 7: Strong and transparent results focus, explicitly geared to function.

KPI 8: Evidence-based planning and programming applied.

2.4.2.5 RESULTS MANAGEMENT

Is NAMMCO assessing achievement of relevant contributions to regional cooperation, conservation and management of marine mammals in the North Atlantic in an efficient way?

KPI 9: Achievement of regional cooperation, conservation and management objectives and results (e.g. at the institutional level, at the regional/country level), and contribution to normative and cross-cutting goals (e.g. in relation to CGs and other IGOs policies).

KPI 10: Relevance of interventions to the needs and priorities of CGs and other beneficiaries, and extent to which NAMMCO works towards results in areas within its mandate.

KPI 11: Results delivered efficiently.

KPI 12: Sustainability of results.

2.4.3 Factors affecting the performance

Factors positively or negatively affecting the NAMMCO performance were extracted from the evidence (particularly the Panel's analyses of available documents and interviews), with a view to informing findings against criteria, rather than to be assessed or rated as discrete data.

The Panel considered a number of external and internal context-related areas, as follows:

External context-related reasons:

- Operating context.

- Governance context.
- Financial context.
- Partner (national/regional partner, donor, wider multilateral) context.

Internal context-related reasons:

- Policy issues.
- Programme or project design.
- Objectives/targets – appropriate, realistic.
- Financial resource issues.
- Human resource issues.
- Implementation challenges.
- Oversight/governance of the institution.
- Risk management.
- Communication and decision-making systems.
- Use of innovation (specify).

2.5. Individual Performance of Member Countries

While this report focuses largely on the collective work of the Faroe Islands, Greenland, Iceland, and Norway as NAMMCO, there are portions of the report where the Panel examines the individual performance of one or more members. The Panel's comments and recommendations have been made with a constructive intention, to help Member Countries identify critical aspects that can be improved or to highlight their strengths for the benefit of other Member Countries. Significant differences among the members means that comparisons of their individual performances are not meaningful and should not be done. These differences include attributes such as: (a) the length of the coastline from which marine mammals are hunted; (b) the number of different species of marine mammals that are hunted; (c) the number of different hunts; (d) the number of people dependent on hunting marine mammals for their livelihood; (e) the importance of marine mammals as a source of food; (f) the size of the economy and national budgets devoted to relevant issues; and (g) the per capita income of those harvesting marine mammals. All of the members share NAMMCO's commitment to ensure the sustainable management of the marine mammals in the North Atlantic. The attributes identified above, and others, have an influence on what is possible with respect to implementing that commitment.

CHAPTER 2 – RESULTS AND CONCLUSIONS

1. GENERAL SUMMARY OF FEEDBACK RECEIVED

In total, the Performance Review Panel received feedback from 55 out of 132 potential respondents (42%), who were involved with NAMMCO at different levels and in different roles. There was a range of responses, from declining the offer to participate in the surveys and/or interviews due to a lack of sufficient competence/past and current involvement (n=10), to partial/full responses to surveys/interviews (n=39), to participation to interviews (n=26), to full participation in surveys and interviews (n=18).

Responses were received from 20 representatives of Member Countries delegations, including members of the Council, present and past Committees' chairs, Committees' members, the Chair of the Council; six current or former members of the Secretariat; five observers from four Non-Member Countries (Canada, Denmark, Russian Federation, Japan), three external experts, and two parliamentary representatives. Additional feedback was also received via email from 12 Intergovernmental Organizations/Governmental Organizations (IGOs/GOs) (Arctic Council, EU Commission, Joint Convention on Migratory Species/Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (CMS/ASCOBANS) Secretariat, International Union for the Conservation of Nature (IUCN), NAFO, North East Atlantic Fisheries Commission (NEAFC), Nordic Council of Ministers, OSPAR, IWC Secretariat, and South East Atlantic Fisheries Organization (SEAFO),) and six nongovernmental organizations (NGO) (Livelihood International, Makivik Corporation, the International Fund for Animal Welfare (IFAW), the World Wildlife Fund-Denmark (WWF DK)).

2. PANEL'S DETAILED ANALYSES

2.1 Is NAMMCO meeting its overall objectives?

2.1.1 Introduction to the question 'Is NAMMCO meeting its overall objectives?'

The Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic was signed in 1992 by the governments of the Faroe Islands, Greenland, Iceland, and Norway. It grew out of a memorandum of understanding signed in 1990 by the same Governments.

The preamble to the Agreement sets out a shared vision of the signatory Governments that includes:

- Support for rational management, conservation and optimum utilization of the living resources of the sea following generally accepted principles of international law;
- A desire to enhance cooperation in research on marine mammals and their role in the ecosystem, including, where appropriate, multi-species approaches, and on the effects of marine pollution and other human activities
- A commitment to the development of management procedures which take into account the relationship between marine mammals and other marine living resources
- A belief in the general principles of the conservation and the sustainable use of natural resources as they are reflected in the report of the World Commission on Environment and Development, and

- An understanding that regional bodies in the North Atlantic can ensure effective conservation, sustainable marine resource utilization, and development with due regard to the needs of coastal communities and indigenous people.

To implement this shared vision, the Agreement established NAMMCO. As stated in the Agreement, the objective of NAMMCO is "*to contribute through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic*".

The members of NAMMCO have provided some further insight into what they see as the role of NAMMCO. The members have ratified a statement that appears on the website, and provides that:

*"Through regional cooperation, the NAMMCO member countries aim to strengthen and further develop effective conservation and management measures for marine mammals. Acknowledging the rights and needs of coastal communities to make a sustainable living from what the sea can provide, such measures should be based on the best available scientific evidence and user knowledge and take into account the complexity and vulnerability of the marine ecosystem"*⁵.

The Agreement also describes the structure of the Commission. It has four principal components:

- The Council, which guides the work of the Commission by supervising and coordinating the activities of the other parts of the Commission. The Council has one representative from each of the Parties;
- The Management Committees which make recommendations to the Parties concerning measures for conservation and management and to the Council concerning scientific research;
- The Scientific Committee, which consists of scientists appointed by the Parties and which provides scientific advice, as requested by the Council, and using, to the extent possible, existing scientific information; and,
- A Secretariat which performs duties as assigned.

The Council and the Management Committees make decisions by consensus. Although, so far it has never used it, the Scientific Committee can make decisions by vote (one per delegation). They can also establish subsidiary bodies as needed, although the Council can exercise authority over how the Scientific and Management Committees work.

The Agreement describes an extensive scope for the work of NAMMCO: Article 2 refers to "*marine mammals in the North Atlantic*". This language provides that NAMMCO could concern itself with any marine mammal found in the Atlantic Ocean from the equator north and into the Arctic. The FAO has taken this view⁶. Although there appears to be no formal opinion to this effect, NAMMCO has limited its work to research on and the management of marine mammals that are found in the waters of its members. Also, in its work, NAMMCO seems to have placed an emphasis on marine mammals that are hunted by its members.

2.1.2 Perceptions from Survey Respondents and Interviewees on NAMMCO's overall objectives

Interviewees believed that NAMMCO was meeting its objectives. Members of the Council and others from NAMMCO's members generally expressed the view that NAMMCO is

⁵ <https://nammco.no/about-us/> (Last visited January 12, 2019).

⁶ <http://www.fao.org/fishery/rfb/nammco/en> (Site last visited January 12, 2019).

meeting its objectives, although some thought that there was room for improvement. There were differences of view about whether NAMMCO has a Strategic Plan. One NAMMCO member felt that there was both a strategic and a financial plan and that NAMMCO has a clear strategic direction.

Of the survey respondents who responded to this question, 80% felt that NAMMCO was meeting its objective while 20% believed that it was partially doing so. Of those who responded partially, one noted that there were some nations that relied on advice from both NAMMCO and the IWC, while another believed that NAMMCO did little to contribute to marine mammal science. Another noted the continuing efforts to get Canada and Russia to join. One of the respondents described NAMMCO's objective as vague (as it does not quantify the aimed level of contribution) and believed that while NAMMCO has contributed to a large extent, that work has been limited by placing an emphasis on priority species while its mandate is broader. Finally, one respondent noted the advisory nature of NAMMCO's role. Some of the respondents who answered this question "yes" also provided additional comments including that Greenland gets advice on small mammals and pinnipeds from NAMMCO. Another respondent in this group commented that NAMMCO could do better while still another noted that stocks that are identified on the website as having a status of "*overfished or unknown are still being fished*".

2.1.3 Panel's views and recommendations on NAMMCO's overall objectives

[PRP18-RC1] The NAMMCO Agreement includes an objective, which the Panel **finds** that the Commission has met, as it has contributed "*through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic*".

[PRP18-RC2] However, the Panel **believes** that the NAMMCO's aspirations are much more ambitious. For example, the Preamble to the Agreement further defines the vision of NAMMCO's members. This vision includes a variety of goals that can be seen as related to the objective of the Agreement including:

- Optimum utilization of the living resources of the sea;
- Adherence to general principles of international law;
- Enhanced cooperation on research on marine mammals and their role in the ecosystem, utilizing, where appropriate, multi-species approaches and considering the effects of marine pollution and other human activities;
- The development of management procedures that account for the relationship between marine mammals and other marine living resources;
- Adherence to the general principles of the conservation and sustainable use of natural resources as set out in the report of the World Commission on Environment and Development; and,
- An understanding that regional bodies in the North Atlantic can ensure effective conservation, sustainable marine resource utilization, and development with due regard to the needs of coastal communities and indigenous people.

Some of these same goals are reflected in a statement, that is quoted above, that appears on the website on the "*About NAMMCO*" page, and that has been ratified by all of the members of the Commission. That statement, which reiterates and builds upon objectives in the Preamble, includes the following as goals:

- Developing effective conservation and management measures for marine mammals;
- Protecting the rights and needs of coastal communities to make a sustainable living from what the sea can provide;

- Developing those conservation and management measures using the best available scientific evidence and user knowledge; and,
- Taking into account the complexity and vulnerability of the marine ecosystem.

These goals are also included in the Nuuk Declaration⁷, a statement issued by the members of NAMMCO to mark the 25th Anniversary of the organization.

Finally, it is clear from the discussions within the Council and NAMMCO's various subsidiary bodies that NAMMCO's members also want the organization to be seen as a credible and well-regarded science-based regional institution.

[PRP18-RC3] As discussed in Section 2.4 of Chapter 1, the Panel adopted additional criteria to guide its work. One of those additional criteria focuses on whether NAMMCO has identified and adopted a clear strategic direction and done the planning and put in place the mechanisms that will allow it to attain its goals. With these additional criteria in mind, and measuring NAMMCO's performance against these more clearly defined objectives, the Panel **concludes** that while NAMMCO has performed reasonably well, there is room for improvement. Below the Panel makes a number of specific recommendations on how the Commission could improve various aspects of its performance. These recommendations have been consolidated in Chapter 3.

[PRP18-RC4] The Panel also **recommends** that NAMMCO develop and implement a Strategic Plan to help it focus its efforts and better guide decision-making across the organization. In developing its Strategic Plan, the Commission will need to clearly define its objectives, drawing upon the objective set out in the NAMMCO Agreement as informed by the Preamble to the Agreement as well as, perhaps, more contemporary documents such as the Nuuk Declaration and the statement on the NAMMCO website that is discussed above. The Strategic Plan should also define priorities for the organization to help decision-makers with difficult choices among competing demands. In addition to setting priorities, the Strategic Plan should identify long- and short-term goals for the organization. These should be accompanied by a multi-annual budget that would allow a coherent use of available financial and human resources. Guidelines on how to deal with contingencies, including financial and staffing aspects of NAMMCO should also be drafted. See sections 2.7.1.2 and 2.7.1.3 (detailed criterion 6.1.1) in this Chapter for more on these aspects. It should also include a mechanism for the regular review of whether these goals have been attained or whether the organization is still on the path for achieving them. Also, it should provide for periodic consideration of whether these goals continue to be the right ones. The Panel believes that, if properly implemented, the ongoing SWOT analyses of the Council, its subsidiary bodies and the Secretariat will provide useful input into the Strategic Plan. Finally, as a public institution, NAMMCO should develop its Strategic Plan as transparently as possible and invite the participation of relevant stakeholders in the process. The Panel **encourages** the Commission to consider recommendations included throughout this report and consolidated in Chapter 3 when developing its Strategic Plan. The Panel has included references to other specific issues and recommendations related to the development or implementation of a Strategic Plan in the following sections of this Performance Review: 2.2.1.3 (PRP18-RC6), 2.2.2.3 (PRP18-RC8), 2.2.3.15 (PRP18-RC25), 2.2.6.15 (PRP18-RC38), 2.4.1.3 (PRP18-RC54), 2.5.1.3 (PRP18-RC55), 2.5.1.6 (PRP18-RC57), 2.6.3.3 (PRP18-RC68), 2.7.1.3 (PRP18-RC71-78), 2.7.2.3 (PRP18-RC80, PRP18-RC83, PRP18-RC86), and 2.8.2.9 (PRP18-RC94). Some of the broad issues for consideration include: i) explicitly defining the geographical scope of the application of the Agreement including

⁷ https://nammco.no/wp-content/uploads/2017/08/nuuk-declaration_nammco-25_april-2017.pdf

whether it extends beyond the EEZs of member countries, taking account of marine mammal species ecology (including their ranges), ii) expanding NAMMCO membership to include other countries bordering the North Atlantic that harvest marine mammals, iii) identifying and prioritizing the stocks to be managed by NAMMCO; iv) updating and implementing a communications strategy that reflects the objectives of the organization; v) securing sufficient resources to allow the Commission to meet its goals; and, vi) strengthening the capacity of the Secretariat to support the work of the Commission (see also section 2.7.1.3). At the same time, the Panel **believes** that NAMMCO should consider developing clearer operational guidelines related to working methods of all NAMMCO subsidiary bodies.

2.2 Conservation and management

Under this Area the Panel was given six general criteria (1.1-1.6) and 20 detailed criteria.

2.2.1 Status of marine mammal stocks

This section examines NAMMCO's performance in improving the status of marine mammal stocks under its purview. We will discuss the two related detailed criteria 1.1.1 and 1.1.2 together.

General criteria 1.1 (Status of marine mammal stocks) and 1.2 (Ecosystem approach) are also relevant for general criteria 1.4 (Quality and provision of scientific advice) and 1.5 (Quality and provision of management advice).

AREA 1 – CONSERVATION AND MANAGEMENT	
General criteria	Detailed criteria
1.1 Status of marine mammal stocks	1.1.1 Status of marine mammal stocks under the purview of NAMMCO. 1.1.2 Trends in the status of those stocks.

2.2.1.1 INTRODUCTION TO GENERAL CRITERION 1.1 "STATUS OF MARINE MAMMAL STOCKS"

Concerning the general criterion on the status of marine mammal stocks under the purview of NAMMCO (1.1.1) - including detailed criteria 1.1.1 ("*Status of marine mammal stocks under the purview of NAMMCO*") and 1.1.2 ("*Trends in the status of those stocks*") - Table 1 provides relevant information on species and population assessments by NAMMCO, with reference to assessments conducted by other bodies. The table is based on material prepared by the Secretariat for this Panel⁸ and information published online⁹.

Within the NAMMCO management area there are seven pinniped species (Atlantic walrus, bearded, grey, harbour, harp, hooded, ringed seals), six mysticetes (blue, fin, sei, bowhead, humpback, minke whales) and a number of odontocete species (including Beluga, narwhal, Atlantic white-sided dolphin, common bottlenose dolphin, white-beaked dolphin, harbour porpoise, northern bottlenose whale, beaked whales species, killer whale, long-finned pilot whale, Risso's dolphin and sperm whale).

As usual practice, NAMMCO does not provide advice on stocks for which Member Countries receive IWC or Joint Commission for the Conservation and Management of Narwhal and Beluga (JCNB) advice (e.g., populations under the IWC Aboriginal Subsistence Whaling, stocks of Narwhal and Beluga shared with Canada¹⁰, and minke whales hunted by Norway).

⁸ PRP2018_26, PRP2018_27, PRP2018_28, PRP2018_29

⁹ <https://nammco.no/marinemammals/>

¹⁰ "The MC accepted that the JCNB would provide management advice for [West Greenland Narwhal], which is shared by Canada and Greenland. The MC therefore recommended that closer links be developed with the JCNB on this and other issues of mutual concern" (NAMMCO 10, 2000).

Table 1 - NAMMCO Marine mammal species and populations assessments and advice																												
CETACEANS ¹																												
Species & areas or stocks	Data	Hunt	BYC	'93	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'08	09	'10	'11	'12	'13	'14	'15	'16	'17	'18	Comments
Blue whale // Area																												
North East Atlantic	DD	N																								Since 2015 the SC reviews progress annually		
Fin whale // stocks																												
West Greenland (Ad from IWC/ASW)		Y	Y													R			R									
EGI (EG+WI small area)		Y	Y						Y	NC			Y	R	Y	Y			Y					Y		Y		
Faroes - West Norway		N							NC	R			R	R	R	R			R					NC		Y		
Northern Norway		N							NC	NC			R	R	R	R			NC					NC		NC		
Minke whale // stocks																												
West (Ad from IWC/ASW)		Y	Y					NC	NC				NC					NC	NC	NC				R		NC		
Central		Y	Y				Y	Y					Y					Y	Y	Y				Y		Y		
East (Ad provided nationally by NO)		Y	Y					NC	NC				NC					NC	NC	NC				R		NC		
Bowhead whale // area																												
Greenland	DD	Y																									Since 2010 the SC reviews progress annually	
Humpback whale // areas																												
West Greenland		Y	Y											R		R	R		Y					Y		Y		
Iceland - Faroe Islands		N	Y											R		R	NC		NC					NC		NC		
Norway		N	Y											R		R	R		NC					NC		NC		
Sei whale // area																												
North Atlantic	DD																	SC review	R	R							Since 2008 the SC reviews progress annually	
Sperm whale // area																												
North east Atlantic	DD	N																									Since 2010 the SC reviews progress annually	
Bottlenose whale // area																												
North Atlantic	DD				R	Y																					Since 2006 the SC reviews progress annually	
Beluga // stocks																												
Eastern High Arctic ²		Y							R	Y	Y			R	Y			Y				Y		Y		Y	Status of all stocks reviewed by GROM in 2017.	
East Greenland		Y							R																			
Svalbard - Barents Sea		N							R	NC	NC			NC	NC			NC				NC				R		
Narwhal // areas																												
Baffin Bay		Y							R	NC	R			R	R			Y				Y		Y		Y		
West Greenland		Y							R	R	R			Y	Y			Y				Y		Y		Y		
East Greenland	DD	Y							R	NC	NC			NC	R			Y				Y		Y		Y		
Svalbard		N							R	NC	NC			NC	NC			NC				NC				R		
Pilot whale // area																												
Greenland		Y						NC										NC		NC	NC							
Faroe Islands		Y	Y					Y										R		R	Y						Review and next assessment: 2021.	
North east Atlantic		N	Y					R										NC		NC	NC							
Killer whale // area																												
Greenland	DD	Y		NC																						R	External Review asked for 2018.	
North East Atlantic	DD	N	Y	R	R	R	R								R													
Bottlenose dolphin // area																												
North east Atlantic	DD	Y	Y																								Unreliable data on stock structure and abundance.	
Key: BYC=bycatch; Y=Assessment: review of parameters, available data allows some conclusion on the status of the stock and, possibly, management advice to be given; R=Review: available data does not allow firm conclusion on the status of the stock, therefore, research recommendations on the research/data are provided; C=Canadian assessment; DD=data deficient; NC=not considered at that meeting. Color coding: LIGHT BLUE: "no assessment but not substantial removals"; ORANGE: "no assessment but substantial removals (direct and indirect)"; GREEN: "satisfactory assessment, removals (if any) considered sustainable"; RED: "satisfactory assessment, removals considered unsustainable or population considered endangered for other reasons"; PURPLE: Panel's addition for populations/species subject to substantial takes, but not managed or assessed, which should be ORANGE . Footnotes: (1) Only years with a Scientific Committee meeting. (2) Eastern High Arctic-Baffin Bay (Somerset Island) and West Greenland: this stock consists of aggregations summering in the Canadian High Arctic Archipelago, and, to a minor extent, in Smith Sound. In winter, the stock is divided into a portion residing in the North Water polynva and a larger portion residing in coastal ice-free areas along the Baffin Bay sea ice edae in West Greenland.																												

Table 1 (continue) - NAMMCO Marine mammal species and populations assessments and advice

CETACEANS (continue)																												
Species & areas or stocks	Data	Hunt	BYC	'93	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	Comments
White sided dolphin	Little reliable data on stock structure and abundance																											
White beaked dolphin	Little reliable data on stock structure and abundance																											
Harbour porpoise /areas																												
Greenland		Y							R													R				R	Next assessment: 2019	
Iceland		N	Y						R													R				Y	Review and next assessment: 2019.	
Faroe Islands	DD	Few	Y						R													NC				Y		
Norway		N	Y						R													NC				Y		
PINNIPEDS																												
Species & areas or stocks	Data	Hunt	BYC	'93	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	Comments
Harp seal // stocks																												
NWA		Y	Y	NC	Y		R	NC		Y			Y		Y	NC	R	R		Y		Y	Y		R		Next ICES/NAFO/NAMMCO WG in 2019	
Greenland Sea		Y	Y	Y	R		Y	NC		Y			Y		Y	NC	Y	Y		Y		Y	R		Y			
White-Barents Sea		Y	Y	NC	R		R	Y		Y			Y		Y	NC	Y	Y		Y		Y	Y		Y			
Hooded seals // stocks																												
NWA		Y	Y	NC	Y		R	NC		R			R		R	Y	R	R		R		R	R		R		As above.	
Greenland Sea		Y	Y	Y	R		R	Y		Y			Y		R	Y	Y	R		Y		Y	R		Y			
Ringed seal // areas																												
Baffin bay - Davis Strait	DD	Y	Y			Y																					Next Review and Assessment: 2021.	
Greenland Sea		Y				Y																						
Barents - Kara Seas		Y				Y																						
Bearded seal // areas																												
Greenland	DD	Y																									Next Review and Assessment: 2021	
Svalbard		Y																										
Harbour seal // areas																												
Greenland	DD	P2010 /Y														R				Y					NC		Next WG in 2020	
Iceland		Y	Y													R				Y					Y			
Faroe Islands		E1850																										
Norway		Y	Y													Y				Y					Y			
Svalbard		P1980	Y													R				NC					NC			
Grey seal // areas																												
Greenland new 2009 species 2009	DD	P2010																									From 2010 onwards the SC review progress at annually Next WG in 2020	
Iceland		Y	Y			R							R							Y					Y			
Faroe Islands	DD	Y	Y			R						R								R				R				
Norway		Y	Y			R						R								Y				Y				
Atlantic Walrus // stocks																												
Baffin Bay		Y			Y										Y			Y				Y		Y			Y	
West Greenland - SE Baffin Isl.		Y			Y										Y			Y				Y		NC			Y	
Baffin Isl.																												
East Greenland		Y			Y										Y			Y				Y		NC			Y	
Svalbard - Franz Josef Land		P1952			R										R			R				NC		NC			NC	
Key: Key: BYC=bycatch; Y=Assessment: review of parameters, available data allows some conclusion on the status of the stock and, possibly, management advice to be given; R=Review: available data does not allow firm conclusion on the status of the stock, therefore, research recommendations on the research/data are provided; C=Canadian assessment; DD=data deficient; NC=not considered at that meeting; E=Extinct. Color coding: LIGHT BLUE: "no assessment but not substantial removals"; ORANGE: "no assessment but substantial removals (direct and indirect)"; GREEN: "satisfactory assessment, removals (if any) considered sustainable"; RED: "satisfactory assessment, removals considered unsustainable or population considered endangered for other reasons"; PURPLE: Panel's addition for populations/species subject to substantial takes, but not managed or assessed, which should be ORANGE . Footnotes: (1) Only years with a Scientific Committee meeting.																												

However, in years when there was uncertainty on whether IWC would renew quotas (i.e., humpback whales in Greenland in 2014 and 2018), the NAMMCO Scientific Committee provided additional advice upon request from the Council (in 2010¹¹, 2015¹² and 2018¹³).

Since its inception NAMMCO has conducted dozens of full assessments including management advice (see Table 1 coded “Y”) and/or progress reviews (i.e., review of the status of knowledge; see Table 1 coded “R”), as well as preliminary assessments on several stocks of four species of mysticetes (i.e., fin, sei, humpback and minke whales), six of odontocetes (i.e., narwhal and beluga, bottlenose, killer and pilot whales, harbour porpoise), and six pinnipeds (i.e., harp, hooded, ringed, grey and harbour seals and walrus) under its purview.^{14,15,16,17} Among these species, sei whales, bottlenose whales, pilot whales and ringed seals have only been assessed once by NAMMCO; whereas, minke, fin and humpback whales, belugas, narwhals and some seals (i.e., harp, hooded, grey, harbour seals and walrus) are assessed ‘regularly’.

The Scientific Committee regularly considers information available and progress made on seven other data-poor species - six cetacean and one pinniped species (i.e., blue, bowhead and sperm whales, white-beaked white-sided and bottlenose dolphins, as well as bearded seals) - at its annual meetings. So far, the Scientific Committee has concluded that there is not enough data to conduct comprehensive assessments of these seven species. A comprehensive assessment of bearded and ringed seals is planned for 2021, and Conservation of Arctic Flora and Fauna/Circumpolar Biodiversity Monitoring Program (CAFF/CBMP) and the Marine Mammal Laboratory of the U.S. National Oceanographic and Atmospheric Administration (MML/NOAA) have been invited to participate.

Concerning the evaluation of trends in the status of stocks under NAMMCO’s purview (criterion 1.1.2), the Panel interpreted this sub-criterion as the combination of information on population abundance¹⁸ and of conservation status¹⁹ (presented in previous paragraphs and Table 1). Based on material prepared by the Secretariat²⁰ (Table 1) and available online the current knowledge on trends in abundance are as follows. A total of 65 populations or putative local stocks of cetaceans and 34 of pinnipeds have been considered by the NAMMCO Scientific Committee in the context of attempting to assess their status.. These also include seasonal aggregations (e.g. Western Greenland bowhead whales winter component, North East Greenland bowhead whales summer component, etc.). Among these there are:

- **10 decreasing or likely decreasing putative stocks or units** (there from called stocks) **subject to hunts** (West Greenland fin whales, West Greenland humpback whales, Iceland coastal minke whales, East Greenland narwhal, West Greenland white-beaked dolphins, Greenland Sea-West Ice hooded seals, Svalbard ringed seals, Trøndelag-Nordland grey seals, Icelandic grey seals, Icelandic harbour seals). Some of these apparent declines could however also be due to distributional shift consequent to shift in prey distribution or changes in oceanographic conditions.

¹¹ NAMMCO 2011. Report of the 17th Scientific Committee meeting, April 2010, video conference.

¹² NAMMCO 2016. Report of the 22d Scientific Committee meeting, November 2015, Tórshavn, Faroe Islands.

¹³ NAMMCO 2017. Report of the 23rd Scientific Committee meeting, November 2016, Nuuk, Greenland.

¹⁴ Joint ICES/NAFO/NAMMCO Working Group on Harp and Hooded seals, September 2016, Copenhagen, Denmark.

¹⁵ NAMMCO 2013. Report of the 19th Scientific Committee meeting, April 2012, Tasiilaq, Greenland.

¹⁶ NAMMCO 2016. Report of the 22d Scientific Committee meeting, November 2015, Tórshavn, Faroe Islands.

¹⁷ NAMMCO 2017. Report of the 23rd Scientific Committee meeting, November 2016, Nuuk, Greenland.

¹⁸ PRP2018_30 and PRP2018_31

¹⁹ PRP2018_23, PRP2018_24, PRP2018_26-29.

²⁰ PRP2018_30 and PRP2018_31

- **8 stocks of “unknown size and trend” or “unknown trend” subject to hunts** (West Greenland killer whales, East Greenland killer whales, Faroe Islands bottlenose dolphins, Canadian waters and West Greenland bearded seals, East Greenland bearded seals, Svalbard bearded seals, Faroe Islands grey seals, Greenland harbour seals).
- **16 stocks with a single abundance estimate subject to hunts and/or by-catch issue** (i.e. East Greenland minke whales, Faroe 2007 & CODA bottlenose whale, West Greenland-North Water winter aggregation of belugas, Smith Sound belugas, Jones Sound belugas, East Greenland pilot whales, East Greenland white beaked dolphins, East Greenland harbour porpoises, Iceland coastal harbour porpoises, Faroese coastal harbour porpoises, Barents Sea-Lofoten harbour porpoise, North Norwegian coastal harbour porpoises, Part of Baffin Bay ringed seals, Scoresbysund and Kong Oscar Fjords ringed seals, North Water bearded seals, Svalbard harbour seals).
- **1 decreasing stocks not subject to hunts** (i.e. Jan Mayen minke whales).
- **14 stable stocks subject to hunts** (i.e. West Greenland minke whales, North Eastern stock minke whales, Central North Atlantic minke whales, Inglefield Bredning narwhals, Melville Bay narwhals, Eastern Baffin Island narwhal, Eclipse Sound narwhals, Admiralty Inlet narwhals, Somerset Island narwhals, Iceland-Faroes pilot whales, North Sea harbour porpoises, Northwest Atlantic harp seals, East Greenland walrus, Norway (entire coast) harbour seals).
- **4 stable stocks not subject to hunts** (i.e. Norwegian Sea/Jan Mayen fin whales, Iceland coastal humpback whales, Iceland-Faroes humpback whales, Barents and Norwegian Sea humpback whales).
- **14 increasing stocks subject to hunts** (i.e. East Canada-West Greenland bowhead whales, Iceland-Faroes fin whales, West Greenland winter component-Eastern Davis Strait/Baffin Bay belugas, West Greenland pilot whales, West Greenland harbour porpoises, Iceland-Faroes White beaked-dolphins, Iceland-Faroes White-sided dolphins, White Sea/Barents Sea (East ice) harp seals, Greenland Sea (West Ice) harp seals, Northwest Atlantic hooded seals, Summer Canada walrus aggregation, Greenland North water walrus aggregation, West Greenland walrus aggregation, Norwegian grey seals).
- **5 increasing stocks not subject to hunts** (i.e. North East Greenland summer component bowhead whales, Iceland-Faroes blue whales, Iceland-Faroes sperm whales, Iceland-Faroes white-beaked dolphins, Svalbard walrus).

Moreover, for 12 stocks subject to hunts (five of pinnipeds and seven of cetaceans) the last abundance estimate is older than 10 years (i.e. Inglefield Bredning narwhals, Iceland coastal harbour porpoises, Northwest Atlantic hooded seals, Part of Baffin Bay ringed seals, Scoresbysund and Kong Oscars Fjords ringed seals, Svalbard ringed seals).

2.2.1.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON GENERAL CRITERION 1.1

Answers from Survey respondents and interviewees to Q2-Q4 are included in Appendix 7. In particular, in relation to Q2 on whether NAMMCO has a good understanding of the status of marine mammal stocks under its purview, despite a general satisfaction, some respondents stated that there is a considerable difference in the understanding of the status of different stocks and species. Moreover, there is a diffuse perception that NAMMCO has a good understanding of ‘very visibly’ hunted stocks and less or no understanding for non-hunted stocks. Examples given were:

- **Known stocks:** minke whales in Norway; beluga, narwhal and walrus in Greenland; fin and minke whale in Iceland

- **Poorly known or unknown stocks:** harbour porpoise in Norway and Iceland; grey seals in Iceland; grey seals in the Faroes; killer whale, harbour porpoise, sperm whale; belugas in Svalbard; ringed seals and bearded seals (considered ok by IUCN); hooded seal in the Greenland Sea; dolphins, beaked whales and stocks other than minke whales in the Northeast Atlantic.

With respect to Q3 on whether NAMMCO has improved the status of marine mammal stocks under its purview, views expressed by various respondents may not be fully consistent with the available official information. The general sense is that some species and stocks have improved thanks to NAMMCO advice (e.g. belugas, narwhals, and walrus in Greenland). For other species and stocks, respondents indicated that NAMMCO did not have a positive effect, as these are 'still poorly known' and/or have declined (e.g. harbour and grey seals in Iceland; harbour porpoises).

Finally, in respect to Q4 on trends of stocks since 1992, respondents were split in two categories: those stating that "*trends are increasing or stable*" and those providing a more cautious description of the current situation. In particular, respondents suggested that caution is needed because there are probably over 100 stocks of marine mammals in the North Atlantic. Most of these are increasing or stable (e.g. beluga, narwhal, walrus and most of arctic seals), however some are declining (see answers to Q.3) and for others we do not have good knowledge (see answers to Q.2). For some stocks there are considerable indications of reduction in numbers: e.g. the Icelandic coastal seals (hooded seals in the Greenland Sea, grey and harbour seal in Iceland, ringed seal in Svalbard); fin and humpback whales in West Greenland, and minke whales in coastal areas off Iceland. Even though the latter could simply reflect changes in distribution, more caution is warranted.

Interviewees, especially scientists on the delegations of NAMMCO members and external experts, shared the same general perceptions.

2.2.1.3 PANEL'S VIEWS AND RECOMMENDATIONS ON GENERAL CRITERION 1.1

[PRP18-RC5] The Panel **believes** that NAMMCO has contributed to improving knowledge on the status of marine mammal species and stocks in the North Atlantic by stimulating scientific discussions and research. The Panel also **recognizes** that the NAMMCO Council has helped to improve the status of some populations (e.g. belugas, narwhals, and walrus in Greenland). However, the Panel **notes with some concern** that:

- (1) several assessments are very old (e.g. ringed seal: 21 years, long-finned pilot whale: 20 years, humpback whales: 9-15 years depending on stocks) or they are becoming sufficiently old enough not to be reliable for management purposes (e.g. fin whale: up to nine years depending on stocks, minke whales in WG: 8 years). Even the newest assessments are based on some rather old abundance estimates (e.g. estimates of various beluga and narwhal stocks are 5-10 years old²¹.)
- (2) hunts still occur on stocks for which abundances are identified as "declining" (10 stocks), or of "unknown size and trend" and "unknown trend" (8 stocks), or for which only a single abundance estimate has been obtained (16 stocks), or that are of "unknown size" but assessed as "increasing" or "stable" (see section 2.2.1.1 for full details), or classified as '*no assessment but substantial removals*'²². Depending on

²¹ Global Review of Monodontids, March 2017, Hillerød, Denmark; p. 48.

²² PRP2018_30 and PRP2018_31.

the level of catches and the rate of decline or the uncertainty of the estimate on their actual abundance, this approach may not be precautionary.

- (3) the Council has endorsed the GROM Working Group recommendations²³.
- (4) in some occasion, the Management Committees did not endorse Scientific Committee recommendations (e.g. proper bycatch and abundance and distribution data, frequency of surveys, stock structure, quotas and seasonal closures, etc.);
- (5) in some occasion, Member Countries did not implement some recommendations or implemented them after major delays²⁴;
- (6) the Scientific Committee does not have a transparent systematic procedure for evaluating species and stocks (e.g. similar to the IWC procedure used to carry out *Implementation Reviews* under the RMP and the AWMP) and, until the NAMMCO Council Meeting in 2018, the Management Committees have not had,²⁵ a systematic process for evaluating the implementation of the management measures against defined reference points (see also section 2.2.5.3, PRP18-RC27 and PRP18-RC28). This impeded attempts to follow the fate of any recommendation of the Scientific Committee until 2018. This seems an inefficient way to work and it may lead or have led to a sub-optimal use of human and financial resources.

The Panel **views** these issues as important components of NAMMCO's credibility as a resource management organization. Therefore, it **urges** Member Countries to apply the required level of precaution **and recommends** that:

- (1) Populations with observed declining trends and subject to hunting (e.g. hooded seals in Greenland Sea, grey and harbour seals in Iceland, ringed seals in Svalbard, grey seals in Trøndelag-Nordland, fin whales, humpback whales and white-beaked dolphins in West Greenland, minke in Icelandic coastal waters), as well as a number of poorly known stocks that are affected by direct and indirect takes (e.g. bearded seals in West and East Greenland, bearded seals in Svalbard, killer whales in West and East Greenland, possibly white-sided dolphins in Faroe Islands, Harbour porpoise in Norwegian waters) are given the proper attention;
- (2) All these cases be fully reconsidered as a matter of priority to (a) confirm that hunts are sustainable, (b) solve all inconsistencies and (c) produce and make publicly available, in a simplified manner, all necessary data that can confirm or otherwise that hunts do not harm these stocks;
- (3) The Council work with other relevant international and national authorities to develop a plan to help the Scientific Committee implement the research recommendations from the GROM working group on 'abundance estimates', 'stock identity', and 'movement and distribution' assigning high priority and funding to this work;
- (4) The Council implement PRP18-RC28 (section 2.2.5.3) on developing clear and transparent working methods on interactions between Committee's;

²³ Global Review of Monodontids, March 2017, Hillerød, Denmark.

²⁴ Scientific advice with respect to species and populations may change over time (e.g., when based on small datasets).

²⁵ PRP2018_09 and PRP2018_10.

- (5) Recommended management actions be timely implemented by Member Countries as they are based on the best scientific advice available at the time that the recommendation is made; and,
- (6) NAMMCO Scientific Committee establish, with the support of the Secretariat, a systematic procedure to assess species and stocks. In order not to duplicate efforts and streamline existing approaches, this procedure should also codify the way NAMMCO Scientific Committee interacts with other bodies, such as the Scientific Committee of the IWC, various working groups of ICES and relevant Canadian research institutes and departments. This includes the adoption by the Council of a work plan to tackle the most urgent cases in terms of data collection and assessments, also taking into account the ageing of available abundance estimates. The Panel **notes** the positive improvement made at the last meeting of the Management Committees and the Council (2018) with the introduction of the list of *"Recent proposals for Conservation and Management and research recommendations"*²⁶ as a tool to assess progress made on recommended conservation and management measures.

[PRP18-RC6] In general, the Panel **recommends** that the Council, when developing a Strategic Plan that details the objectives, goals and priorities for NAMMCO, include principles on prioritization of research and advice on species and stocks in relation to its objectives and targets (see sections 2.2.1 and 2.1, respectively).

[PRP18-RC7] In preparing this review, the Panel found that some of the information about species and stocks that is included on the NAMMCO official website, is incorrect. The Panel was informed that the Scientific Committee has agreed to proof-read all scientific and technical information that is on the website²⁷. However, there is no formal procedure to carry out such an important task. Therefore, the Panel **recommends** that NAMMCO established a formal procedure to review and update the NAMMCO website regularly. The Panel **suggests** that all Committees, together with the Secretariat, periodically review and endorse their relevant sections, including all figures and tables. In particular, the Panel **notes** that:

- (1) Trends of abundance of marine mammal populations and their conservation status are presented on the website in an inconsistent manner. This is true between and within species, with inconsistencies on: (a) how the same information on different species is presented and (b) what is presented for the various populations within a species, including information on abundance estimates and trends. The Panel **recommends** that an editorial effort is made to guarantee a consistent approach in presenting information on trends of distribution and abundance for all species and their populations;
- (2) The color-coding of the assessments' tables presented online and the various geographic areas there listed are potentially confusing. In terms of the definition of color categories in the stock assessments tables, the **Panel believes** that categories "light blue" and "orange" need clarification. Both categories, are defined using the

²⁶ NAMMCO/26/MC/05

²⁷ NAMMCO *In press*. Report of the 25th Scientific Committee meeting, November 2018, MS Polarlys, Norway, p. 11, item 5.8.

wording "*no assessment, but substantial removals...*". This wording leaves the reader believing that some quantitative assessment to establish reference points and evaluations of whether those removals are having an effect on populations has been made. However, all this would entail a proper assessment of the population, which is negated by these definitions themselves. The wording "*substantial removals*" here is, therefore, misleading and the **Panel recommends** changing it and clarifying whether these are quantitative or qualitative categories and what type of data was used to define the level of removals;

- (3) It would be beneficial to establish an official nomenclature of names of geographical areas to avoid confusion and **suggests** that the Scientific Committee and the Secretariat should work together to address this issue;
- (4) Tables on stocks, would benefit from some clarity when presenting assessment made solely by NAMMCO, assessments made in collaboration with other organizations (e.g., International Council for the Exploration of the Sea (ICES) working groups, IWC, JCNB, etc.) and assessments made only by other organizations. The **Panel notes** that it would be very useful to also report on the NAMMCO website assessments made entirely by others, if then adopted or used by the NAMMCO Scientific Committee to provide advice to the Council; however, some note would be required to explain the process;
- (5) Some inconsistency in the treatment of some known stocks (identified by the Panel in purple in Table 1, which are coded as "light blue" stocks or even missing from the website tables). In particular - given the existing knowledge in relation to direct and indirect takes of killer whales and white-beaked dolphins in the North Atlantic, harbour porpoises in Greenland and Norway and harbour and grey seals in Greenland – the Panel **recommends** that these stocks be reconsidered and, if necessary, classified as 'orange' ('*no assessment but substantial removals*'); and,
- (6) Other issues with the information on marine mammal species on the website, including several incorrect references to published reports in relation to the most recent assessments and missing species and populations (i.e., the Greenlandic grey seal, which is a new species since 2009, and the Greenlandic stock of the harbor seal).

2.2.2 Ecosystem approach

This section evaluates how NAMMCO advice takes into account and incorporates an ecosystem approach to management (detailed criteria 1.2.1), climate and environments factors (detailed criteria 1.2.2) and the potential impact of non-hunting activities on the conservation status of stocks (tourism, shipping, fisheries bycatch, fishery competition; detailed criteria 1.2.3).

AREA 1 – CONSERVATION AND MANAGMENT	
General criteria	Detailed criteria
1.2 Ecosystem approach	<p>1.2.1 Extent to which NAMMCO advice takes into account and incorporates an ecosystem approach to management.</p> <p>1.2.2 Extent to which NAMMCO advice takes into account climate and environments factors.</p> <p>1.2.3 Extent to which NAMMCO advice takes into account the potential impact of non-hunting activities on the conservation status of stocks (tourism, shipping, fisheries bycatch, fishery competition).</p>

2.2.2.1 INTRODUCTION TO GENERAL CRITERION 1.2 'ECOSYSTEM APPROACH'

The work of the NAMMCO Scientific Committee on how to incorporate an ecosystem approach to management of marine mammals started very early in the organization's history, but it has had mixed fortunes. The Scientific Committee considered a number of aspects of the ecosystem approach, including (a) the role of the marine mammals in the ecosystem; (b) the economic consequences of harvesting regimes for marine mammals; (c) the competition between fisheries and marine mammals; (d) bycatch; and (e) environmental changes caused by physical and chemical disturbance, climate change and other factors (e.g. effects of whale watching).

The "role of the marine mammals in the ecosystem" was a Scientific Committee agenda item already in 1993. However, initially the Scientific Committee could not recommend the establishment of a special working group on ecological relationships, given the status of knowledge and the desire not to duplicate existing initiatives. Instead, it recommended that NAMMCO follow closely the ongoing work done within ICES and elsewhere (e.g. FAO). In addition, the Committee decided to have the matter on its agenda for continued consideration. As a result, NAMMCO Council sent a request for advice on the ecological role of marine mammals to ICES (i.e., the ICES Multi-Species Working Group). Initially the Scientific Committee merely reviewed the ongoing work at the national (all NAMMCO countries) and international level.^{28,29,30} Special reference was made to the Norwegian Marine Mammal Research Programme. In 1997, the Scientific Committee was asked to focus on more specific items related to the role of marine mammals in the ecosystem. These included an examination of the food consumption of three major marine mammal predators in the North Atlantic, as well as a review of the current state of knowledge of sealworm infestation in fish. Two *ad hoc* Working Groups was established. These Working Groups benefited from the participation of a broad range of external scientists from Canada, Denmark, Iceland, Norway and the UK. The works of these Working Groups were finalized into two special publications in 2000³¹ and 2001.³²

In 1998, under this agenda item and following a request from the Council (1997), the Scientific Committee also started discussing the "*economic aspects of marine mammal - fisheries interactions*". The Terms of Reference for this new sub-topic were:

- to identify the most important sources of uncertainty and gaps in knowledge with respect to the economic evaluation of harvesting marine mammals in different areas;
- to advise on research required to fill such gaps, both in terms of refinement of ecological and economic models, and collection of basic biological and economic data required as input for the models;
- to discuss specific cases where the present state of knowledge may allow quantification of the economic aspects of marine mammal-fisheries interactions;
 - what could be the economic consequences of a total stop in harp seal exploitation, versus different levels of continued sustainable harvest?
 - what could be the economic consequences of different levels of sustainable harvest vs. no exploitation of minke whales?

²⁸ NAMMCO 1994. Report of the 2nd Scientific Committee meeting, November 1993, Reykjavik, Iceland.

²⁹ NAMMCO 1996. Report of the 3rd Scientific Committee meeting, January 1995, Copenhagen, Denmark.

³⁰ NAMMCO 1997. Report of the 4th Scientific Committee meeting, February 1996, Tórshavn, Faroe Islands.

³¹ NAMMCO Scientific Publications Volume 2: Minke whales, harp and hooded seals: Major predators in the North Atlantic ecosystem (2000)

³² NAMMCO Scientific Publications Volume 3: Seal worms in the North Atlantic: Ecology and population dynamics (2001).

In 1998, the "Working Group on the Economic Aspects of Marine Mammal - Fisheries Interactions"³³ was proposed, but it mostly focused on the first two points of the above Terms of Reference.

After the 1997 Council's request, the Scientific Committee reiterated several times that the estimation and model uncertainties in ecosystem studies are such that definitive answers, especially to the request on quantifying the economic aspects of interactions between marine mammals and fisheries in candidate areas, could not be expected in the short-term. Therefore, in 2000, the Committee recommended the establishment of the Working Group on the Economic Aspects of Marine Mammal-Fisheries Interactions. The Working Group was tasked with developing specifications for a multispecies model for two candidate areas (i.e., minke whales and harp seals in the Barents and Norwegian Seas and minke whales around Iceland), and it focused on the first two points of the Terms of Reference from the Council's request. To this end the Scientific Committee convened a workshop in Tromsø, Norway in 2001 to investigate the methodological and analytical problems in estimating consumption by marine mammals and to identify a list of research priorities to refine existing estimates of consumption by North Atlantic marine mammals³⁴. The workshop was titled "*Marine mammals: From feeding behaviour or stomach contents to annual consumption – what are the main uncertainties?*". A second workshop was held in Reykjavik the following year to select a preferred modelling approach for analysing the ecological role of minke whales, harp and hooded seals, and other marine mammal species in the North Atlantic, identifying required input data, and recommending a process for further development. Given the type and amount of information available to be used as a basis for potential management advice in the short to medium term, this Workshop recommended using a Minimum Realistic-type model as, for example, MULTSPEC and BORMICON. This approach uses a limited model encompassing only some species of major interest, as opposed to an all-encompassing model where all or most species are included (e.g. ECOPATH/ECOSIM). It was agreed that the priority case study would be the Scenario Barents Sea.

The Committee also supported the conclusion of the Working Group that progress in the development and application of multi-species approaches to the management of marine resources was lagging far behind the stated need of management agencies for such approaches, and again emphasised that progress in this area will not be made unless significant additional resources are dedicated to it. The way forward identified by the Committee to address the Council's requests included: (a) completion of the necessary modelling work and collection of required "input data"; (b) modelling work focuses only on the Barents Sea candidate area, unless additional resources (e.g. additional funding and personnel) for expanding this modelling to other areas.

From 2002 to 2008, the Working Group focused on assessing modelling results from the Scenario Barents Sea model and the GADGET-based template models for other areas, but the progress was slow. The feasibility of connecting the multi-species models with simple economic models was considered as the last step. The Scientific Committee repeatedly recognized that the process of developing predictive multi-species models is a long-term one. During this period, the Scientific Committee also received reports from several workshops on this topic organised by others. These were: in 2006, "Bergen Conference on Implementing the Ecosystem Approach to Fisheries", sponsored by the Norwegian Ministry of Fisheries and Coastal Affairs in collaboration with FAO, Nordic Council of Ministers,

³³ NAMMCO 1999. Report of the NAMMCO Scientific Committee Working Group on Management Procedures. 1998 Tromsø, Norway, pp. 117-131.

³⁴ NAMMCO 2003. Report of the 11th Scientific Committee meeting, November 2002, Nuuk, Greenland.

Norwegian Fisheries Directorate and the Institute for Marine Research; in 2007, FAO workshop on "Ecosystem Approach to Fisheries"; in 2008, ICES/NAFO/NAMMCO workshop "The Role of Marine Mammals in the Ecosystem in the 21st Century" in Canada.

In 2008, in the context of the standing requests to the Scientific Committee on ecosystem based management, the NAMMCO Council further requested the Scientific Committee: *"to extend the focus to include all areas under NAMMCO jurisdiction" and "in the light of the distributional shifts (of species) seen under T-NASS 2007[...] to investigate dynamic changes in spatial distribution due to ecosystem changes and functional responses"*.

In 2009, the Working Group on Marine Mammal & Fisheries Interactions (MMFI) had its workshop on "Marine Mammals and Fisheries in the North Atlantic: Estimating consumption and modelling interactions", which made a project plan for a modelling exercise. This exercise included at least four types of different modelling approaches identified as (a) Minimal realistic model implemented using GADGET; (b) Ecopath with Ecosim; (c) Time series regression and (d) simple biomass-based model such as one that had been recently applied in eastern Canada. It also had a tentative schedule articulated around 4 key-step meetings with a 2-year period as a realistic time-span for the whole process. This project was submitted to the Nordic Council of Ministers, which funded it in 2010.

In 2013 the Scientific Committee was informed that its NAMMCO project on the Ecosystem Modelling developed into a much broader European project (MareFrame), focused on modelling, general fisheries management and socioeconomics on a wider range of species. The new 4-year project was funded by the EU for 6 million Euros and now includes 29 institutes from 16 countries. It still contains parts of the original marine mammal components. Iceland is still a case study area, but multispecies modelling in the Barents Sea has been removed.

Also, in 2013, the agenda item "The Role of Mammals in the Ecosystem" was expanded into a broader "Environmental Issues". This includes occasionally consideration of the effects of climate change.

Between 2013 and 2017, all NAMMCO effort in this area were driven at a national level by Norway, (in cooperation with the Russian Federation) for the Barents Sea and Iceland reporting on the EU project. The idea of a NAMMCO initiative lost momentum as appropriate funding was not secured.

In 2014, the series of requests regarding the economic aspects of interactions between marine mammals and fisheries (R-1.4.1-1.4.6) were declared outdated by the Scientific Committee and it recommended that if the Management Committee would still like these issues addressed, a new, more specific request should be drafted. The Scientific Committee also noted that socioeconomic impacts were included in a 3-year large-scale ecosystem modelling European project (MareFrame). The primary focus of MareFrame was to investigate hurdles in the establishment of ecosystem-based approaches to the management of marine resources and develop tools and methodologies to aid in the implementation of said approaches. It involved several components addressing interactions between marine mammals and fisheries, including interactions between cod and common minke whales in Icelandic waters and between cod and seals off Scotland.

In 2015, the Council requested the Scientific Committee (New Request- R-1.4.7) *"to review the results of the MAREFRAME ecosystem management project when these become available. In particular, the results should be reviewed with respect to the ongoing and*

standing requests on marine mammal interactions (R-1.1.0) and multispecies approaches to management (R-1.2.0)".

In 2016, the Scientific Committee expressed an interest in the potential of developing the modelling effort from the Icelandic case study further by extending the study to the Barents Sea ecosystem. A potential for defining a joint project based on the output from the MareFrame and other ongoing projects was discussed and it was agreed that the secretariat would initiate discussions between the Icelandic Marine and Freshwater Research Institute (MFRI), Norwegian Institute of Marine Research (IMR), University of Iceland (UI) and University of Tromsø (UiT). The Scientific Committee reviewed the results of MareFrame in 2018, and *"concluded that the results of the MareFrame project, and similar developments for the Barents sea, represent an important milestone towards answering these requests. However further work is needed to refine and update the currently available models in terms of their ability to provide advice on marine mammal interaction with fisheries, both direct and indirect. The SC agreed that funding should be sought to extend and further develop the MareFrame project. This funding should be used to refine and tune the models to specifically focus on developing scenarios for the management of marine mammals and the unique needs of NAMMCO"*.³⁵

It is worth noting that one of the declared aims of the new NAMMCO General Secretary (2015) has been *'to make NAMMCO more visible as an effective regional management organisation and develop its ecosystem approach to management'*³⁶. As a result of this decision, the NAMMCO website refers several times to NAMMCO's desire *"to implement an Ecosystem Approach to management, where marine mammals are seen as a part of a whole ecosystem, and where all human impacts are taken into account, not only hunting"*³⁷. NAMMCO also recognizes that *"adopting an ecosystem approach to management is essential for understanding population dynamics and encompassing the interactive and cumulative impacts of the different anthropogenic stressors"*³⁸.

It is also important to note that the Nuuk Declaration (April 2017) reconfirmed NAMMCO's commitment to the ecosystem approach idea by stating the following: *"Recognising the range of anthropogenic pressures facing North Atlantic marine mammals associated with the climate and environmental changes taking place, the Parties further commit to increasing their efforts and cooperation in assessing the cumulative impact of non-hunting related anthropogenic stressors, particularly global warming, bycatch, pollution and disturbance, and to furthering the ecosystem approach to the management of marine mammals"*.³⁹

Finally, it is worth noting that in 2018 NAMMCO Council made a specific recommendation (R-1.5.4) *"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, bycatch, pollution and disturbance"*. In response, the Scientific Committee recommended, as a first step, that upcoming/future Working Groups consider request R-1.5.4, for example by adding non-hunting impacts to their agendas.⁴⁰

In addition, throughout this entire period of NAMMCO's existence, its Secretariat and scientists have regularly followed all initiatives relevant to the role of marine mammals in

³⁵ NAMMCO 2018. Report of the 24th Scientific Committee meeting, November 2017, Reykjavik, Iceland.

³⁶ <https://nammco.no/topics/nammco-25-years/>

³⁷ <https://nammco.no/topics/assessing-status-managing-stocks/>

³⁸ <https://nammco.no/topics/cumulative-impacts/>

³⁹ https://nammco.no/wp-content/uploads/2017/08/nuuk-declaration_nammco-25_april-2017.pdf.

⁴⁰ SC/24, 2017

the ecosystem (e.g. ICES/NAFO working groups, FAO workshops, national and international projects, etc.) and provided the Council with updates.

Regarding the assessment of the economic aspects of ecosystem management, in spite of the preliminary nature of available data analyses, at its first meeting, the Working Group on “Economic Aspects of Marine Mammal-Fisheries Interactions” concluded that the emerging cost-benefit figures warranted serious consideration, as the overall costs to the fishing, whaling and sealing industries incurred by not whaling and/or not sealing, could be quite considerable, and that the effects due to predation could be an important part of the overall picture. This analysis did not include the potential costs of whaling and sealing to industries such as tourism and whale watching, nor potential benefits of whaling and sealing to the fishing industry due to a possible change in the frequency of parasites in fish. Some important biological factors, such as the effects of hooded seals, were also not considered.

In 1998, the Scientific Committee was also informed of the results of a study on the economic consequences of harvesting regimes for marine mammals in Icelandic waters⁴¹. Some preliminary results on the effects of different harvesting regimes for marine mammals indicated that different harvesting strategies for marine mammals can have considerable economic impacts, but these are to a large extent indirect, such as through increased economic yield from other resources (e.g. cod). It was further noted that there may be a potential adverse effect of a resumption of Icelandic whaling on other industries, such as tourism or fish exports, as per possible reductions in prices etc. However, the Norwegian experience did not indicate that, and results were considered too preliminary to draw conclusions.

From 2000 to 2006, the Scientific Committee reiterated that the estimation and model uncertainties are such that definitive answers to part iii (of the 1997 Terms of Reference) of the request from Council, to quantify the economic aspects of interactions between marine mammals and fisheries in candidate areas, cannot be expected in the near term. In 2006 the Scientific Committee was forced to conclude that it could not provide the requested advice on the economic aspects of fishery - marine mammal interactions in the two areas (Barents Sea and Iceland) and with the two species (minke whales and harp seals) that have been identified as feasible for this assessment. As in the past, the Scientific Committee emphasized that progress in this area will not be made unless significant additional resources are dedicated to it.

In 2011, relevant to this matter, the Scientific Committee received results from a photo-identification study of humpback whales around Nuuk (Greenland) looking at the potential impact of whaling on local whale watching activities⁴². The study, which was published in 2014⁴³, identified 76 individual whales, between 2007 and 2012, with the six most observed whales accounting for 50% of all sightings. It was estimated that an annual removal of one individual during spring would reduce the sighting rate in summer up to 35% over the next 50 years, thereby having the lower effect on the Summer sighting rate. As result of this study, the municipality of *Sermersooq* arranged meetings between tour operators and whale hunters to identify solutions.

Several types of environmental issues – including disturbance (e.g. tourism, shipping, fishing, seismic surveys, whale watching, noise), pollution and climate change - have been considered since the beginning of NAMMCO. Table 2 summarises requests of NAMMCO

⁴¹ [NAMMCO 1999. Report of the 6th Scientific Committee Meeting, March 1998, Reykjavík, Iceland.](#)

⁴² [NAMMCO 2012. Report of the 18th Scientific Committee meeting, May 2011, Gjógv, Faroe Islands.](#)

⁴³ Boye *et al.* 2014.

Council to the Scientific Committee and the status of their completion. Besides, NAMMCO Scientific Committee has been reviewing information relevant to environmental issues in general, such as the effect of changes in sea temperature on sealworm infection in fish, effects of climate change on belugas and narwhals (e.g. changes in distribution, changes in population parameters).

In relation to the latest request from the Council (R-1.5.4) the Scientific Committee noted in 2017 *"that it is not possible to find a one-size fits all answer to this request, and that, as a start, this request will need to be dealt with on a case by case basis. The SC recommended that upcoming/future working groups consider request R-1.5.4, for example by adding non-hunting impacts to their agendas"*. The Global Review of Monodontids meeting⁴⁴ considered environmental/habitat concerns for each monodontid stock in the NAMMCO area. A NAMMCO-JCNB workshop is planned (2019) to address some of these questions for species and populations of West Greenland and Canada.

Within the broad category "disturbance", NAMMCO occasionally also considered tourism and whale watching. Whale watching was first considered in 1998 as an economic element to be analysed among other ways to utilise a resource. Later the focus switched to the potential disturbance of marine mammal observation on certain species (e.g. walrus and belugas in West Greenland). In most of these instances, due to a lack of substantive information, the Scientific Committee found itself unable to provide robust advice. Results from various projects have been reported to the Scientific Committee.

In 2009, given the wide scope of the request from the Council and the lack of data (i.e., R-2.6.3 and R-3.4.9) the Scientific Committee proposed the creation of a Working Group on the impacts of human activities other than hunting on marine mammals in the North. In 2012, the Council specified that the focus of R-3.4.9 should not be expanded to assess these issues for all marine mammals, but it should be focused on walrus, narwhal and beluga.

In 2015, NAMMCO held a Symposium on "Impacts of Human Disturbance on Arctic Marine Mammals". Concerns were raised about a Canadian mining project in the Canadian Arctic, the Mary River Project operated by Baffinland Iron Mines Corp, which may have severe consequences for the large numbers of marine mammals using the area. Narwhals, belugas, bowheads, ringed seals and walruses may be affected with unpredictable consequences for their populations, but also for the accessibility to hunting and/or its sustainability. Other industrial activities that were addressed at the symposium as being particularly important as disturbance factors for marine mammals were seismic exploration in Canada, and West and East Greenland. The Scientific Committee drew the attention of the Council to the potentially severe consequences of these projects and noted that these industrial activities could undermine advice previously provided by the Scientific Committee. The Scientific Committee also recommended that the issues regarding belugas and narwhals be discussed further at the JCNB-NAMMCO Joint Working Group. Finally, the Scientific Committee recommended to Greenland that the Greenland Institute of Natural Resources (GINR) be consulted when projects are in development and involved in the evaluation of Environmental Impact Assessment reports. They should also be engaged if the project plans change.

⁴⁴ Global Review of Monodontids, March 2017, 2018 Hillerød, Denmark.

Table 2 - Status of Council's requests and Scientific Committee responses on "Environmental Issues" (R-1.5.0) and bycatch (R-1.1.7) (adapted from PRP2018_11)

Council request ID	Council request text	Actions by the Scientific Committee	Status
R-1.1.7 NAMMCO/16 02-2007	To take into consideration the drafted text (NAMMCO/16/6) provided by the former By-catch WG in formulating how to handle bycatch issues in the future.	2008: SC/15 recommended the organization of a workshop to review the use and applicability of the bycatch monitoring systems in use in different organizations. and suggested to seek contact with other organizations dealing with bycatch monitoring in view of initiating collaboration on this matter (SC/15). 2009: Steps were taken towards the organisation of the workshop. (SC/16).	Completed (2010)
R-1.5.1. NAMMCO/01 09-1992	To describe the possible pathways of radioactive material from blowouts and leakage in existing nuclear power plants, leakage from dumped material and possible accidents in planned recycling plants in the northern part of Scotland into the food web of the North Atlantic and hence into the top predators like marine mammals.	Forwarded to ICES.	Outdated (SC21)
R-1.5.2. NAMMCO/01 09-1992	To review the contaminant burden (especially organochlorines) in marine mammals in the North Atlantic and evaluate the possible sources of these contaminants.	No response from the SC. In 1995, NAMMCO hosted the International Conference on Marine Mammals and the Marine Environment. The Conference covered the following themes: Marine mammals and the marine environment-impacts and management approaches; Contaminants in marine mammals – sources, levels and effects; Coastal communities and marine pollution – social, economic and health considerations; Addressing the questions – problems and future needs. The proceedings were published as a special issue of The Science of the Total Environment (186, 1, 2).	Completed
R-1.5.3. NAMMCO/24 04-2016	To monitor the development of the Mary River Project and assess qualitatively or if possible quantitatively the likely impact and consequences on marine mammals in the area.	SC/24 recommended that the issues regarding belugas and narwhals be discussed further at the JCNB-NAMMCO JWG...[additionally] the JWG meetings routinely include information sharing between Canada and Greenland on new human activities that are occurring in either country that could affect narwhals and belugas. (SC/24, 2017).	Ongoing
R-1.5.4. NAMMCO/25 03-2017	Committed to furthering its ecosystem approach to the management of marine mammals, and recognising the range of anthropogenic pressures facing North Atlantic marine mammals associated with the climate and environmental changes taking place, the Council requests 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, bycatch, pollution and disturbance.	SC/24 recommended [as a first step] that upcoming/future WGs consider request R-1.5.4, for example by adding non-hunting impacts to their agendas. (SC/24, 2017)	Ongoing

Table 2 - Status of Council's requests and Scientific Committee responses on "Environmental Issues" (R-1.5.0) and bycatch (R-1.1.7) (adapted from PRP2018_11) – CONTINUE

Council request ID	Council request text	Actions by the Scientific Committee	Status
R-2.3.1. NAMMCO/05 02-1995 <i>NAMMCO/19 09/2010</i> <i>NAMMCO/22 02-2014</i>	<p>1995: To advise on stock identity of ringed seals for management purposes and to assess abundance in each stock area, long-term effects on stocks by present removals in each stock area, effects of recent environmental changes (i.e., disturbance, pollution) and changes in the food supply, and interactions with other marine living resources.</p> <p>2010: Request 2.3.1 is endorsed again as a standing request.</p> <p>2014: The report from the SC is noted and the idea of a WG in 2015 or later when enough information is available is endorsed.</p>	<p>1995: The SC established a WG on Ringed Seals. The SC considered the report of the WG and provided advice to Council. They also provided recommendations for future research. (SC/5, 1997).</p> <p>2010: The SC noted that there is currently very little information on stock structure and stock size to consider in relation to both requests (2.3.1 and 2.3.2). Some movement information exists, but these do not give enough information to have understanding of population structure. The SC suggested that a WG be considered in the next few years (2015 or later). The WG could look into movements (from the available satellite tagging data) versus where catches are occurring in relation to stock structure. It may also be important to assess this species in light of climate change and changing ice conditions. The SC notes that it is very difficult to obtain the desired information on this species. The Arctic Council recently held a meeting on ringed seals, and it was suggested that the SC considers, at its next meeting, the report from that meeting, and data availability, and considers then the need for a WG (SC/20, 2013).</p> <p>2015: ...still not enough information...The SC recommended research (genetics, surveys) that will help towards responding to R-2.3.1 (SC/22, 2015).</p> <p>2017: The SC does not have the information to answer this request. If more information becomes available to answer R-2.3.1, then this would also help in answering R-2.3.2. The SC considers new abundance estimates and information on stock structure that have been previously recommended would be the most helpful in answering these requests. (SC/24, 2017).</p>	Ongoing
R-2.6.1. NAMMCO/02 01-1993	To advise on stock identity for management purposes; to assess abundance in each stock area; to assess long-term effects on stocks by present removals in each stock area; to assess effects of recent environmental changes (i.e., disturbance, pollution) and changes in the food supply.	<p>1993: The assessment was postponed pending report of Walrus International Technical and SC (WITS). (SC/2).</p> <p>1995: It was decided in late 1994 to request Erik Born of the Greenland Fisheries Research Institute in Copenhagen to coordinate the compilation of a status report on the Atlantic walrus in time for the SC meeting. The result of this collaboration was the report, E.W. Born, I. Gjertz and R.R. Reeves, "Population assessment of Atlantic walrus (<i>Odobenus rosmarus rosmarus</i>)" This report was used by the SC as the basis of its management and research recommendations to Council. (SC/3).</p>	Completed
R-2.6.3. NAMMCO/15 03-2006 <i>NAMMCO 22 02-2014</i>	<p>2006: The SC should provide advice on the effects of human disturbance, including fishing and shipping activities, in particular scallop fishing, on the distribution, behaviour and conservation status of walrus in West Greenland.</p> <p>2014: Continued planning of the disturbance workshop for beluga and narwhal is supported, and it is also recommended to include walrus (see also R-3.4.9).</p>	<p>2009: With the current actual state of knowledge, the SC is unable to answer this question. The walrus disturbance study on Svalbard will help only in answering the problem of disturbance by tourists. The SC referred, however, to the answer to request 3.4.9. (SC/16, 2009).</p> <p>2010: Owing to a lack of explicit studies, the SC is not in a strong position to provide advice on the effects of human disturbance on walrus. (SC/17).</p> <p>2013: With regard to R-2.6.3, the SC noted that there is no new information available to consider this request (SC/20).</p> <p>2015: Concerns were raised at both the [Disturbance] Symposium and the SC meeting about a Canadian mining project currently under development in the Canadian Arctic, the Mary River Project operated by Baffinland Iron Mines Corp... It will have severe consequences for the large numbers of marine mammals [including] walruses, with unpredictable consequences for the populations themselves but also for the accessibility to hunting and/or its sustainability. Other industrial activities that were addressed at the symposium as being particularly important as disturbance factors for marine mammals were seismic exploration in Canada, and West and East Greenland. The SC draws the attention of the NAMMCO Council to the potentially severe consequences of these projects. The SC noted that these industrial activities will also likely have impacts on the hunting of these species, and could affect the advice that is given by this SC. (SC/22).</p> <p>2017: Answered as far as is possible with the information that is currently available. However, this request remains ongoing, and should be considered again when additional specific information is available. (SC/24).</p>	Ongoing

Table 2 - Status of Council's requests and Scientific Committee responses on "Environmental Issues" (R-1.5.0) and bycatch (R-1.1.7) (adapted from PRP2018_11)

Council request ID	Council request text	Actions by the Scientific Committee	Status
R-3.4.9. NAMMCO/14 03-2005 <i>NAMMCO 22 02-2014</i>	<p>2006: To provide advice on the effects of human disturbance, including noise and shipping activities, on the distribution, behaviour and conservation status of belugas, particularly in West Greenland.</p> <p>2014: To continue planning of the disturbance workshop for beluga and narwhal, and also recommends including walrus.</p>	<p>2006: The SC conveyed this request to the JCNB/NAMMCO Joint WG to consider at their next meeting, probably in late 2007 or 2008 (SC/14).</p> <p>2008: The SC recommended that this item be on the agenda of the meeting of the JCNB/NAMMCO Joint WG, recommended to meet before March 2009. (SC/15).</p> <p>2009: The SC is not in the position to progress on this issue at this point and recommends that habitat-related concerns becomes a standing item on the JCNB/NAMMCO JWG agenda. It may be difficult, if not impossible, to answer the specific request for beluga for several years to come. The SC notes that many of the habitat concerns apply to other marine mammals besides beluga and therefore it may be appropriate to treat all species together in addressing this topic. As a way forward, the SC recommends that the Council consider extending the scope for a more general request with the SC establishing a WG on the impacts of human activities other than hunting on marine mammals in the North Atlantic. Ugarte is suggested as Chair. Terms of Reference for the first meeting would be the evaluation of impact of seismic, shipping and tourist activities on the distribution, behaviour and conservation of marine mammals. (SC/16).</p> <p>2012: The JWG and the SC (SC/19) recommended holding an international symposium on the effect of seismic and other development activities on arctic marine mammals with a focus on beluga and narwhal. (SC/19).</p> <p>2013: Relating to Request 3.4.9: In 2011, the SC proposed a symposium on beluga and narwhals in relation to disturbance and industrial activities. The SC recommends this symposium to be held in 2015 and awaits further guidance from Council before proceeding with the planning (SC/20, 2013).</p> <p>2014: The SC recommended broadening the scope of the Symposium and include presentations from other species/research. A number of external experts will be required for this meeting (SC/21, 2014).</p> <p>2016: Answered as far as is possible with the information that is currently available. However, this request remains ongoing, and should be considered again when additional specific information is available. (SC/24, 2016)</p>	Ongoing

In 2016, the Scientific Committee discussed the need to develop mitigation measures for human disturbance (i.e., tourism) in Iceland.

It is worth noting that, at the 8th Meeting of the Parties of ASCOBANS (2016), in its Opening Statement NAMMCO reiterated its intention to engage in cooperation with other relevant organisations to tackle the effect of direct and indirect threats caused by anthropogenic pressures on marine mammals in the North Atlantic. A clear reference was made to direct catches and to all "*multiple, cumulative and synergistic threats [...] such as bycatch and entanglements, noise, pollution, climate change and increased human activities in the Arctic (shipping, fishing, mining, tourism...)*".

The issue of accidental captures (i.e., fishery bycatch; see also criteria 1.3.3 for additional information) and its effects on species and populations has been discussed, but not systematically by the Scientific Committee, since the mid-90s. However, since 2005 bycatch is a standing item of the Agenda of the Scientific Committee.

In 1996, the Scientific Committee noted the "*importance of obtaining data on the level of bycatches for population assessments, and agreed to recommend to member countries to establish a system for reporting data on bycatches*"⁴⁵.

In 1997, the Management Committee established the Working Group on By-catch⁴⁶, which met the first time in 1998 and therefrom annually until 2009, when it was transferred under the remit of the Scientific Committee. In 1999, the WG on By-catch of the Management Committee concluded that "*work to record by-catch data has been initiated and in some case implemented in the member countries. However, a quality control of the procedures for obtaining data was needed*"⁴⁷.

After its first request in 1996 on bycatch data, several times the Scientific Committee expressed concern on the level of bycatch for several species and populations within the NAMMCO area (e.g. grey seals in Norway, harbour porpoises in Iceland and Norway). Given the importance of this data to allow the assessment of the sustainability of catches in populations, in 2004 (and following years), the Scientific Committee strongly recommended the establishment of reliable monitoring/reporting programmes on fishery and aquaculture bycatch for all NAMMCO countries. Norway implemented a programme in 2005 for inshore fisheries for cod and anglerfish. Iceland established a procedure for monitoring marine mammal by catch in 2002 (Report of the management committee Working Group on Bycatch in NAMMCO 2005⁴⁸). In 2008, Iceland switched to e-logbook and in 2009 included all marine mammals in the official reporting of independent fishery observers. In Greenland, historically hunters have been required, by Executive Order, to report bycatches of large whales, narwhal, beluga, and walrus. However, until the introduction of an online reporting system in 2013, by-catches of seals and small cetaceans were required to be reported as catches in the paper-reporting scheme *Piniarneq*. This made the ratio of bycatch to catch for these species unknown. In addition, since 1996, all foreign vessels operating in Greenlandic waters, have an obligation to record and report all catches including birds and mammals. Since 2016, all inshore fishermen selling their fishery catch, have been required to report any bycatch of birds and mammals through the Sales notes. This was done as part of the process for obtaining Marine Stewardship Council (MSC) certification for Greenland's fisheries.

⁴⁵ NAMMCO 1997. Report of the 4th Scientific Committee meeting, February 1996, Tórshavn, Faroe Islands.

⁴⁶ NAMMCO Annual Report 1997.

⁴⁷ NAMMCO Annual Report 1999, p. 118

⁴⁸ <http://nammco.wpengine.com/wp-content/uploads/2016/08/Annual-Report-2004.pdf>

In the Faroe Islands fisheries, bycatch reporting is done on a voluntary basis and information on the species is not collected, thereby making these data unusable. In 2011 e-logbook reporting was implemented for boats of length over 15m, but in this reporting data is aggregated for "whales" and "seals". See section 2.2.3.7.3 on "Bycatch reporting" for more details on monitoring programmes.

None of these monitoring programmes ever produced data of sufficient quality to obtain accurate bycatch rates for species caught by different gears. As noted by the BYC WG of the Scientific Committee *"as has been observed in most other areas, the logbooks do not provide a reliable source of data to use for estimating by-catch, even when fishermen should be motivated by a compensation. It therefore strongly recommended that logbooks are not used for calculating/assuming by-catch rates, but only used as indicators for raising concerns when by-catch reporting is increasing"*⁴⁹. In addition, bycatch observation efforts by independent observers are still too low (e.g. Norway) or do not exist (e.g. Faroes Islands).

As a result, Norway and Iceland presented estimates of bycatch of grey seals and harbour seals and harbour porpoise, which were not endorsed by the Scientific Committee, as data on observation coverage and fishing effort were considered unreliable^{50, 51}. The only total bycatch estimates endorsed by the Scientific Committee were those produced by Iceland for lump sucker nets (2014-2017)⁵².

In 2009, the Scientific Committee discussed the Council request R-1.1.7 (NAMMCO/16/6: how to handle the bycatch issue in the future) and recommended that a workshop be held in collaboration with ICES. At the initiative of NAMMCO, a joint workshop was held in 2010 to: 1) review and describe advantages and disadvantages of existing observation schemes for marine mammals and seabirds, and 2) recommend best practice when establishing and implementing bycatch observation schemes, including developing a training manual for bycatch monitoring of protected species.

In 2011, the Scientific Committee reviewed the results of this workshop and noted "that bycatch numbers could be high both in Norway and Iceland". Fifteen years after its first recommendations, the Scientific Committee also reiterated that accurate estimates of total removals are essential for the assessment of all species and strongly recommended that Norway and Iceland provide estimates of bycatch in a timely manner. The Scientific Committee also strongly encouraged Iceland, Norway and the Faroes to proceed with the implementation of reliable bycatch monitoring systems and reiterated its recommendation to Greenland *"to investigate the degree to which bycatch is reported as catch"*.

In 2014, the Scientific Committee recommended convening a By-catch Working Group (BYC WG) and proposed its term of reference. This would be a technical Working Group that could focus on discussing the methods that are being used to collect the data and extrapolate the results and decide if further work is required. The Scientific Committee also noted that the lack of bycatch recording in the gill net fishery from the log-book system implemented in 2009 in Iceland is of great concern. Since the late 1990s, a functioning bycatch recording system has been deemed of high priority. Again, concern was raised over the impact of bycatch on harbour porpoises.

In 2016, the By-catch Working Group met in Reykjavik (Iceland), with the following tasks: (1) Identify all fisheries with potential bycatch of marine mammals; (2) Review and evaluate

⁴⁹ NAMMCO By-catch Working Group, October 2018, teleconference.

⁵⁰ NAMMCO *In press*. Report of the 25th Scientific Committee meeting, November 2018, MS Polarlys, Norway.

⁵¹ NAMMCO 2018. Report of the 24th Scientific Committee meeting, November 2017, Reykjavik, Iceland.

⁵² NAMMCO By-catch Working Group, October 2018, teleconference.

current bycatch estimates for marine mammals in NAMMCO countries; (3) Provide advice on improved data collection and estimation methods to obtain best estimates of total bycatch over time; (4) establish a framework for future work of the Working Group and identify which data were available and which data were missing to be able to evaluate current by-catch estimates in NAMMCO countries. The first three tasks of this workshop became the standing Terms of Reference of the Scientific Committee By-Catch Working Group. The Working Group agreed that an independent, permanent NAMMCO bycatch Working Group, meeting every 1-2 years, with a link to the ICES Working Group on Bycatch of Protected Species (ICES WGBYC) was the best way forward. In 2017, the Scientific Committee BYC WG met in Copenhagen (Denmark) to (1) Review the Norwegian harbour and grey seals and harbour porpoise bycatch data and estimates; (2) Review the Icelandic lumpfish and cod gillnet fishery bycatch data and estimates; (3) Review the situation in the Faroese mid-water trawling - precise fleet description, bycatch risk and reporting; methods for improving the situation; (4) Review the information from Greenland on reporting of bycatch for the different species. The SC BYCWG met twice in 2018. Two members and former chairs of the ICES WGBYC are regularly invited as external experts.

At the 25th meeting of the Council the Committee on Hunting Methods proposed the creation of a new Committee on Non-hunting related Welfare Issues, which was meant to focus on "*animal welfare concerns related to by-catch, entanglements and strandings. [...] It also strongly recommended not to limit the ToR of the committee to issues specifically related to by-catch, entanglements and strandings, but to make them general to non-hunting related welfare issues and able to encompass situations not foreseen today [e.g. whale and seal watching impact]*". However, the Council opted to establish a working group directly under the Council to deal with animal welfare issues solely related to by-catch, entanglements and live strandings. This was the NAMMCO Working Group on By-catch, Entanglements and Live strandings (BYCELS WG), which held its first meeting in February 2018. This Working Group reports directly. Upon request from the Council or individual member countries the Working Group shall provide advice on welfare issues related to bycatch, entanglement, and live strandings, affecting marine mammals, based on the best available scientific findings, technological developments and traditional knowledge, with due consideration given to safety requirements for humans. Non-member governments with observer status in NAMMCO may request advice from the BYCELS Working Group through the Council. The Working Group may also seek outside expertise if it considers this necessary and appropriate.

Some European countries, such as Sweden⁵³ and the United Kingdom, have over the years implemented culling programmes that involve substantial removals of seals. These activities are relevant to NAMMCO discussions in terms of general criteria 1.1 (particularly, on assessment of shared stocks) and 1.2 (ecosystem management). However, these removals have not been discussed within NAMMCO. These management measures may be relevant to discussions concerning the area of NAMMCO's competence.

2.2.2.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON GENERAL CRITERION 1.2

Full details on answers from Survey respondents and interviewees to Q5-Q10 on detailed criteria 1.2.1-1.2.3 and additional information (*Responses to ad hoc questions from members of the Scientific Committee and external experts*) are included in Appendix 7.

In general, interviewees with a strong scientific background stated that there have been several attempts within NAMMCO Scientific Committee to address the Ecosystem approach

⁵³ Swedish Environmental Protection Agency (Naturvårdsverket).

issue, particularly ecosystem modelling, but little progress has been made. These attempts were originally considerable, endeavouring to develop such models to assess the impact of baleen whale and seal populations in the central and northeast Atlantic on the sustainable yields possible from fisheries harvesting some of the same prey species that are consumed by the marine mammals. Initially, the idea was not to build one large single best model, but rather to apply a series of models to see at least whether there was robustness in the direction of the impact to be expected. However, this task proved more daunting (complex and extensive) than originally thought, with inadequate funding and expert human resources available to address it within NAMMCO. Also, the respondent believed that the main reason for such little progress was the extreme challenge of quantifying and understanding multispecies interactions at the level of detail needed to provide multispecies management advice on sustainable catches.

Concerning Q5 (*Extent to which NAMMCO advice takes into account and incorporates an ecosystem approach to management*), 30% of respondents were unsatisfied. The general sense was that the discussion on this topic lost momentum based on lack of funding.

In regard to Q6 (*Extent to which NAMMCO advice takes into account climate and environmental factors*), the percentage of dissatisfaction increased to 35%. However, this perception may improve because the process of examining climate and environmental factors has finally started. Some interviewees pointed out that the impact of climate change and environmental factors is not really evaluated. According to some interviewed scientists, climate and environmental factors have never been a major focus for the NAMMCO Scientific Committee, but it has been discussed more and more frequently in recent years. It was also recognized that generally the data available provides a weak basis upon which to draw inferences about the impact of climate change and environmental factors, and that not much progress on understanding the impacts on the population dynamics of the various cetacean populations in the North Atlantic from these sources should be expected.

Concerning Q7 (*Extent to which NAMMCO advice takes into account the potential impact of tourism, on the conservation status of stocks*), dissatisfaction was 58%. Some stated that tourism is not of interest for NAMMCO and that impact of tourism on species has been rarely evaluated (e.g. walruses in Svalbard).

Regarding Q8 (*Extent to which NAMMCO advice takes into account the potential impact of shipping activities on the conservation status of stocks*), dissatisfaction was 43%. This topic has been introduced only recently, and there are few case studies (e.g. Canadian Mary River Project) and no examples of management decision taken to mitigate impacts.

In regard to Q9 (*Extent to which NAMMCO advice takes into account the potential impact of fishery bycatch on the conservation status of stocks*). Respondents were generally satisfied with the current work of NAMMCO in this area. NAMMCO recently fully engaged in a discussion on how to assess the impact of bycatch on marine mammals, launching the BYCELS initiative⁵⁴. Technical committees have difficulties in handling the issue because it requires proper data. The BYCELS initiative should help to fill data gaps and coordinate efforts with other organisations, such as IWC and ICES.

Finally, concerning Q10 (*Extent to which NAMMCO advice takes into account the potential impact of the removal of fish by fishing activities on the conservation status of stocks*), dissatisfaction was 45%. Some respondents felt that this issue is important but has not been given a proper consideration. Other interviewees stated that, unlike the climate change

⁵⁴ <https://nammco.no/topics/bycels-catch-entanglements-live-strandings/>

issue, this topic has been given considerable considerations. Yet, progress has been small, perhaps because of the complexity of the matter. Within the Scientific Committee there has been work focused on the “fish-diets” of marine mammals, but it has never been clear how these data can be extrapolated into a solid understanding of the population dynamic interactions between marine mammals and fish species. The additional connection to the commercial fisheries, does not facilitate progress in the area. There is a perception that, while this topic is important in principle, it is more or less impossible to address satisfactorily in a scientific manner. For example, the Scientific Committee has not been able to answer questions regarding the effect of scallop fisheries on walruses, or the increased ship traffic on belugas. Some respondents stated that Greenland does not rely on NAMMCO for advice regarding marine mammals and fisheries.

2.2.2.3 PANEL’S VIEWS AND RECOMMENDATIONS ON GENERAL CRITERION 1.2

[PRP18-RC8] The Panel **notes** that, since its inception, NAMMCO has shown an interest in applying the ‘Ecosystem approach’ to management. However, given the complexity of the matter, very little progress has been made. This is a trait common to other IGOs and international scientific bodies (e.g. IWC, Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), etc.). In a broader consideration of the ecosystem approach, the NAMMCO Scientific Committee has been asked, from time to time, to look at the effects on marine mammal populations of climate change, environmental factors, tourism, fishery bycatch, fishery competition, seismic surveys and shipping. The Panel **notes** that the Scientific Committee did provide advice on some these matters. In spite of efforts to develop and implement a work plan on how to incorporate the ecosystem approach to management into NAMMCO’s work, the Panel **is of the opinion** that the NAMMCO Scientific Committee has not had sufficient resources to pursue this goal. All efforts have been delegated to national and EU funded programmes. The Panel **recognizes** both the importance and the complexity of integrating an ecosystem approach into the management of marine mammals. It therefore **recommends** that in developing its Strategic Plan, the Council give careful consideration to the role of the Commission in developing a model for applying an ecosystem approach to the management of marine resources given all relevant factors including (a) the complexity of the issues, (b) the work being done by other bodies (for example, the IWC, CCAMLR and ICES), (b) the availability of resources for NAMMCO to pursue this work and other NAMMCO priorities. This would allow the correct use of financial and human resources.

[PRP18-RC9] With regard to the bycatch issue, the Panel **notes** that within NAMMCO there are two working groups looking at this issue: the Scientific Committee (BYC WG) and the Council (BYCEL WG, dealing with animal welfare considerations). The Panel **agrees** with the Scientific Committee’s view that accurate estimates of total removals are essential for the assessment of all species. It **recommends** that accurate estimates of bycatch are provided in a timely manner for the assessment of all populations of marine mammals subject to hunts. The Panel also **strongly encourages** all NAMMCO Member Countries to maintain or proceed with the implementation of national bycatch monitoring systems based on independent observers as appropriate. The Panel also **strongly encourages** Greenland “to investigate the degree to which bycatch is reported as catch”.

[PRP18-RC10] The Panel **notes** that NAMMCO has not given particular attention to harmful impacts of others anthropogenic activities, except for the organisation of the NAMMCO Symposium on the Impacts of Human Disturbance on Arctic marine mammals, with a focus

on Belugas, Narwhals & Walrus (2015)⁵⁵. In addition, the Panel **notes** that, unlike other sources of anthropogenic disturbance which are on the Scientific Committee agenda, such as bycatch, underwater noise, shipping and pollution, the impact of whale and seal watching on marine mammal stocks and ecosystems is not considered by the Committee or the BYCEL Working Group, despite this activity increasing in NAMMCO area. The Panel, therefore, **recommends** that the NAMMCO address this issue as appropriate.

2.2.3 Data collection and sharing

Under the general criterion 1.3 “Data collection and sharing”, five detailed criteria are considered to evaluate how NAMMCO has implemented a common framework on data sharing through standard formats and templates, development of timeframes for data submission, and implementation of research programmes to fill information gaps.

AREA 1 – CONSERVATION AND MANAGMENT	
General criteria	Detailed criteria
1.3 Data collection and sharing	<p>1.3.1. Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions (e.g. National Reports, removals, catch, bycatch, culling and any other removal) data, sightings and effort survey data).</p> <p>1.3.2. Extent to which NAMMCO Parties, individually or through NAMMCO, collect and share complete and accurate data concerning marine mammal stocks and other relevant data in a timely manner, including analysis of trends in hunting activities and abundance estimates over time.</p> <p>1.3.3. Extent to which NAMMCO Parties collect complete and accurate data on hunting activities (catch statistics, hunting effort, struck & lost).</p> <p>1.3.4. Extent to which such data are gathered by NAMMCO, shared among Parties and used in assessment</p> <p>1.3.5. Extent to which NAMMCO is addressing any gaps in the collection and sharing of data as required.</p>

In this section, data on removals (direct and accidental takes, and struck and lost), sightings, research effort, abundance and trends, biological parameters, etc. are all necessary information.

Here the Panel also considers detailed criteria 2.2.1 (*Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions. (e.g. National Reports, Time-To-Death (TTD) data and struck and lost data)*) and 2.2.2 (*Extent to which NAMMCO Parties collect representative and accurate data on hunting activities (catch statistics), hunting effort, struck & lost, TTD*). In terms of background material, these two criteria are essentially duplication of 1.3.1 and 1.3.3, respectively.

2.2.3.1 INTRODUCTION TO DETAILED CRITERION 1.3.1 “EXTENT TO WHICH NAMMCO HAS AGREED FORMATS, SPECIFICATIONS AND TIMEFRAMES FOR DATA SUBMISSIONS (E.G. NATIONAL REPORTS, REMOVALS, CATCH, BYCATCH, CULLING AND ANY OTHER REMOVAL) DATA, SIGHTINGS AND EFFORT SURVEY DATA”

The Rules of Procedure for the Scientific Committee (rule V.4) stipulate that “*Each Party having information on the biology of marine mammals relevant for NAMMCO management*

⁵⁵ NAMMCO Symposium on the Impacts of Human Disturbance on Arctic marine mammals, with a focus on Belugas, Narwhals & Walrus, October 2015, Copenhagen, Denmark.

*objectives including research and statistical material on catches of relevant species or stocks shall briefly report on such information at the relevant meetings of the SC or its working groups*⁵⁶.

Reflecting this, at its fourth meeting in 1994, the Scientific Committee agreed that "*relevant data on catch operations*" should be included in National Progress Reports (NPR)⁵⁷. Annual catch statistics beginning with the year 1992 have for the most part, been included in these reports⁵⁸. NPRs are relevant for a number of sections of this report including general criterion 1.3. (this section), and detailed criteria 2.1.1 (sections 2.3.1.1-2.3.1.3), 3.1.1 (sections 2.4.1.1-2.4.1.3) and 7.1.3 (sections 2.8.1.7-2.8.1.9).

NPRs have been submitted annually by NAMMCO member countries since the establishment of the Commission. Progress reports from non-member countries (Japan, Russia and Canada) have been submitted in some years. The NPRs contain information on marine mammal related issues in a given year pertaining to research, catch data, bycatch data (since 2001), strandings data and, for the members of the Commission, advice given and management measures taken. These reports up until 2016 are included in the Annual Reports. NPRs for 2016 and 2017 are included separately on the NAMMCO website.

At the 25th meeting of the Council in 2017, it was agreed that the deadline for submission of NPRs is March 1. Previously, they were prepared as documents released before the annual Scientific Committee meeting.

*"The guidelines for the content and format of the NPR were adopted by the SC at its 4th meeting, and amended at its 9th meeting of Council to improve catch reporting. In 2000 the MC initiated the reporting of by-catch through NPR (with a new format designed), which was initiated for the year 2000. The present format is available on the website under NPR*⁵⁹*"*⁶⁰. This template covers catch reporting for cetaceans including catches, bycatches and strandings. The Secretariat has prepared a spreadsheet reflecting removals as reported in NPRs submitted by NAMMCO members⁶¹. This spreadsheet is incomplete as some removals are only reported to Committees and relevant Working Groups.

The Scientific Committee has "*Guidelines for data input to Assessment work*". An updated catch series is one of the input requirements for all Scientific Committee assessment work⁶². Catch data is discussed in the Panel's response to criterion 1.3.3.

2.2.3.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.3.1

Answers from Survey respondents and interviewees to Q11 (criteria 1.3.1) and Q28 (criteria 2.2.1) are included in Appendix 7.

Q11 and Q28 are essentially overlapping. To Q11, which reflects criterion 1.3.1 (*Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions (e.g. National Reports, removals (catch, bycatch, culling and any other removal) data, sightings ...)*), seven responded "Excellent", eight responded "Good", ten responded "Satisfactory" and, two responded "Unsatisfactory". To Q28, which reflects criterion 2.2.1 (*Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions. (e.g. National Reports, TTD data and struck and lost data)*), responses were

⁵⁶ Rules of Procedure for the Scientific Committee.

⁵⁷ <https://nammco.no/topics/annual-national-progress-reports/>

⁵⁸ NAMMCO 1994. Report of the 2nd Scientific Committee meeting, November 1993, Reykjavik, Iceland.

⁵⁹ <https://nammco.no/topics/annual-national-progress-reports/>

⁶⁰ NAMMCO Annual Report 2001, p. 139.

⁶¹ PRP2018_32, Appendix 5 and SC/25/31: NAMMCO data spreadsheet.

⁶² Guidelines for data input to Assessment work. In: Rules of Procedure for the Scientific Committee.

similar, with only two who responded "unsatisfactory". These two respondents characterized the problem as follows: "*To my knowledge Struck and Lost data are not well reported for many hunts*"; "*Format agreed for reporting catch, by-catch & strandings but not followed. [...] No agreed method and format reported for S&L*". This was confirmed by one of the respondents who scored the NAMMCO performance in this area as "good" ("*Struck and lost issue remains to be solved, mostly national issue*").

2.2.3.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.3.1

[PRP18-RC11] The Panel **considers** that NAMMCO's agreed formats, specifications and timeframes for data submissions are sufficient for NAMMCO to achieve its scientific and management objectives for marine mammals in the North Atlantic, provided that the existing standard templates (e.g. on reporting catch, by-catch and strandings) are used and the required level of research is maintained and, to the extent practicable, complete and accurate data on catches and other removals continue to be collected.

[PRP18-RC12] The Panel **notes** that there are many hunts for which Struck & Lost data are not reported or are not well reported. The Panel **acknowledges** the work done on this issue by the Committee on Hunting Methods (CHM) and **recommends** that the NAMMCO Council encourage Member Countries to agree to a standard format for reporting and to implement better reporting of Struck & Lost data for inclusion in National Progress Reports and a future NAMMCO Catch database or in the current NAMMCO data spreadsheet.

2.2.3.4 INTRODUCTION TO DETAILED CRITERION 1.3.2 "EXTENT TO WHICH NAMMCO PARTIES, INDIVIDUALLY OR THROUGH NAMMCO, COLLECT AND SHARE COMPLETE AND ACCURATE DATA CONCERNING MARINE MAMMAL STOCKS AND OTHER RELEVANT DATA IN A TIMELY MANNER, INCLUDING ANALYSIS OF TRENDS IN HUNTING ACTIVITIES AND ABUNDANCE ESTIMATES OVER TIME"

NAMMCO parties share data through annual NPRs and submission to Committees and Working Groups.

With regard to sightings data, by far the most data comes from the North Atlantic Sighting Surveys (NASS) conducted in 1987, 1989, 1995, 2001, and 2015 as well as from the Trans North Atlantic Sighting Survey (T-NASS) conducted in 2007. These surveys were coordinated efforts in terms of survey methodology and data analysis among NAMMCO members. Canada also contributed to the T-NASS and complementary surveys south of Atlantic Canada were conducted by the United States.

Data and analyses on species relevant to NAMMCO gathered in national and international projects, including information on, for example, distribution, movements, abundance, natural or human/induced mortality, and behavioural responses to disturbance is shared at the Scientific Committee, in relation to its agenda and the progress made. This data is also shared in expert workshops.

NAMMCO Scientific Publications are also a tool to facilitate the access and the sharing of scientific and technical knowledge on marine mammal species within NAMMCO. Scientific papers resulting from the NASS have been published in NAMMCO Scientific Publication Vol.7.63 (see also responses to criterion 1.4.1).

2.2.3.5 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.3.2

Answers from Survey respondents and interviewees to Q12 are included in Appendix 7.

Responses to Q12 were mostly positive (four "Excellent", 14 "Good", seven "Satisfactory"),

⁶³ <https://nammco.no/topics/volume-7-north-atlantic-sightings-surveys/>

with only one responding "Unsatisfactory". However, some respondents specified that the extent to which NAMMCO Parties, individually or through NAMMCO, collect and share complete and accurate data concerning marine mammal stocks and other relevant data in a timely manner, including analysis of trends in hunting activities and abundance estimates over time varies a lot according to other commitments of Member Countries. Some pointed out that submission of information to the IWC tends to take priority if there is competition on deadlines, even though member countries generally strive to meet data requests and deadlines. One respondent pointed out that for some topics, for example in terms of analysing "trends in hunting activities", the data sharing was not working so well, except in expert working groups.

2.2.3.6 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.3.2

[PRP18-RC13] The Panel **believes** that NAMMCO is an important mechanism for improving the collection of data and data sharing in the region. It **recommends** that the Secretariat and the Chairs of relevant Committees work with other relevant IGOs (particularly the IWC) to avoid overlaps in deadlines and facilitate the data submission process (e.g. using similar systems).

[PRP18-RC14] The Panel also **supports** the widest use of expert meetings and open workshops as they represent a very effective tool for improving data sharing and scientific and technical discussion in the NAMMCO region.

2.2.3.7 INTRODUCTION TO DETAILED CRITERION 1.3.3 "EXTENT TO WHICH NAMMCO PARTIES COLLECT COMPLETE AND ACCURATE DATA ON HUNTING ACTIVITIES (CATCH STATISTICS, HUNTING EFFORT, STRUCK AND LOST)"

2.2.3.7.1 Catch reporting

Verification of reported catches is a critical part of management. This has been a particular challenge for Greenland given the geographical spread and relative isolation of some of the hunting communities and the comparatively large number of hunted species.

At the request of the Scientific Committee, Greenland provided a detailed explanation of its catch reporting and validation procedures to the Scientific Committee⁶⁴. A shortened version of this explanation follows (text from the Scientific Committee report in *italic* and quotation marks). Further comments on Greenland catches by Greenlandic authorities and validation are included in the NAMMCO data spreadsheet prepared by the Secretariat⁶⁵.

In Greenland, *"reporting requirements are based on the hunting act, and hunting and species executive orders"*. Greenland has two different reporting schemes for catches: *Særmeldingsskema* (for marine mammal species under quota; bowhead, fin, humpback and common minke whales and beluga, narwhal, walrus and polar bear) and *Piniarneq* (for other species). *"A few of the quota-species are being reported in both systems. The two systems are inconsistent with respect to the reported catches. This inconsistency creates problems when attempting to determine which numbers should be used in assessments. The SC noted that it was important to know whether the smaller numbers in Piniarneq reflected a general underreporting for all species in that system, as some marine mammal species are only reported under this system. SC-22 therefore recommended that Greenland should streamline their reporting system, and also conduct a study to investigate why the numbers are different between the reporting schemes"*. Catch data are used for managing and

⁶⁴ NAMMCO 2017. Report of the 23rd Scientific Committee meeting, November 2016, Nuuk, Greenland, p. 63.

⁶⁵ SC/25/31: NAMMCO data spreadsheet.

allocating quotas for species under quota system. *"Reporting in Særmeldingsskema is continuous and at the latest in the three weeks following the catch. Reporting in Piniarneq is done once a year, usually when applying for a new hunting license, as the catch reporting is a requirement for renewing hunting licenses".* Greenlandic authorities advise that *"for assessment purposes, catch data of marine mammals under quota should be taken from the Særmeldingsskema".* In Greenland, *"marine mammal quota species can only be hunted by professional hunters (holders of professional hunting licenses), except narwhal and beluga for which up to 10% of the quota can be given to leisure time hunters".* *"There are two kinds of catch data validation. The first one ensures correct entry of the data in the database, but does not validate the catch data. The second relates directly to the catch data. If something unusual occurs, the hunters are phoned (when possible) and asked whether they can confirm the reported catch. [...] This data validation is, however, only done if data in some way is different from what would be expected from the area in that time of the year".* *"Although hunting licenses are mandatory in Greenland, it is suspected that some hunters (leisure time hunters) hunt without paying a hunting license and therefore do not report their catches. Also only about 85% of the hunters having paid a hunting license report catches".* As part of the requirements for obtaining a whaling license, hunters provided tissue samples from minke, bowhead, fin and humpback whales to Greenlandic authorities. Greenlandic authorities are *"confident that the catch data were reliable for baleen whales, especially because the meat could only be sold when the two relevant authorities had stamped the catch certificate, hereby confirming reporting of the catch. The reliability for the three other quota species (narwhal, beluga and walrus) was greater than for the non-quota species, because the reporting should be within three weeks of the catch".*

"The reliability of the catch data for non-quota species was more difficult to assess and varies between species. The catch data should be considered as minimum numbers, but would still give reliable information on trends. The only way to assess the reliability of the catch would be to have numerous wildlife officers in hunting places". This is said by Greenlandic authorities to be logistically and financially impossible in Greenland. *"The Scientific Committee noted that the catch validation, with hunters asked to remember catches, months and sometimes years later was considered unreliable".* Greenland mentioned *"that for Piniarneq they were working to move towards an online real-time reporting for the catch data for non-quota species".*

As an update to a previous recommendation (SC/23) that catches be validated on a yearly basis, Greenland informed the Joint Meeting of the Management Committees (MCJ) that a quality review of the catch data provided by hunters is now performed yearly.

Currently there are no quotas to hunt harbour porpoise, bottlenose whale, white-sided and beaked dolphins, pilot whales and killer whales, but catches need to be reported as part of the hunting license system described above⁶⁶.

In Greenland, the reporting of by-catches of large whales, narwhal and beluga and walrus has been and is a legal requirement stated in the species specific executive orders. For other species, until a new online reporting system was taken in use by 2013, by-catches of seals and small cetaceans were legally required to be reported as catches in the paper reporting scheme *Piniarneq*, making the ratio of bycatch to catch unknown. Also, since 1996, all foreign vessels operating in Greenlandic waters, have an obligation to record and report all catches including birds and mammals. From 2016 all inshore fishermen selling their fishery catch, are through the Sales notes legally required to report any bycatch of birds and

⁶⁶ SC/25/31: NAMMCO data spreadsheet.

mammals.

Other matters related to catch data include:

In general

- Catch data validation for hunts in the Faroe Islands, Norway and Iceland is much easier than is the case for Greenland.

Faroe Islands

- For the major marine mammal hunts in the Faroe Islands catch figures are based on official catch reports submitted by district administrators and compiled by the Ministry of Fisheries (formerly compiled by the Museum of Natural History). The pilot whale drive is always under supervision of local authorities⁶⁷.
- Other than for the major marine mammal hunts in the Faroe Islands, harbour porpoise are not protected and can be hunted year-round. No reporting is provided to NAMMCO, although there is an Executive Order from 2017 requiring reports. There are no reliable hunting statistics for harbour porpoise⁶⁸. The NAMMCO data spreadsheet also includes a statement that a number of grey seals are shot every year in connection with salmon farming, but that there is no systematic reporting of these removals. However, the Faroe Islands NPR for 2017 says "*in 2010 a log book system for seal culls was introduced - this reporting system needs to be validated*"⁶⁹.

Greenland

- Delays in *Piniarneq* data reporting and validation by Greenland, because of domestic regulations that include deadlines for data submission that are inconsistent with NAMMCO deadlines⁷⁰.

Iceland

- Iceland - no mandatory reporting system for seals.
- Catch verification of fin and minke whales in Iceland is done by Directorate of Fisheries observers on some but not all trips and periodic observers from the NAMMCO observation scheme. For fin whales, biologists are at the whaling station for sampling of every landed whale. Further, the DNA control system in Iceland makes it very difficult to conceal catches and there is no incentive to misreport or underreport catches since the catches are well below the quota. For bycatch Iceland has been using an e-logbook system since 2008 and in 2009 all marine mammal catches are included in the official reporting of independent fishery observers.

Norway

- Norway has regulations introduced in 1996 for the coastal seal hunt including a requirement for catch reports⁷¹ as a condition of the hunting license.
- Norwegian whaling boats are controlled and approved for hunting by inspectors from the Norwegian Directorate of Fisheries and the Norwegian Food Safety Authority. The Norwegian Electronic Trip Recorder (Blue Box) is used for at-sea

⁶⁷ <https://www.whaling.fo/en/regulated/450-years-of-statistics/catches/>

⁶⁸ SC/25/31: NAMMCO data spreadsheet.

⁶⁹ Faroe Islands Progress Report on Marine Mammals 2017. NAMMCO/26/NPR-F-17

⁷⁰ NAMMCO 2017. Report of the 23rd Scientific Committee meeting, November 2016, Nuuk, Greenland: "*Reporting in Piniarneq is done once a year, usually when applying for a new hunting licence, as the catch reporting is a requirement for renewing hunting licenses. The reporting on Year x covers the period October (Year x-1) to September (Year x). The executive order specifies that reporting shall take place from October 1-15 (year x), and the main reporting happens from October (year x) to August (year x+1). This means that the full reporting for Year x will only become available in August of Year x+2.*"

⁷¹ <http://www.thesealsofnam.org/norwegian-seal-hunt/>

monitoring of the hunt. In some seasons, observers under the NAMMCO International Observation Scheme are present on board⁷² and, it is also possible to check whether the number of grenades used matches the reported catch. Also, periodic checks on hunting activities are carried out on board and at processing plants by inspectors from the Directorate of Fisheries or the Coast Guard.

- All Norwegian sealing vessels are required to carry a qualified veterinary inspector on board and a log book is used to record and report catches.
- In the game hunt for coastal seals, catches are reported by hunters but there is no system for validating these reports.
- Fish farmers (or persons authorised by the fish farmer) can shoot seals at fish farms. All seals shot to protect fish farms should be reported.

2.2.3.7.2 Struck & Lost reporting

In 2006, NAMMCO held a workshop to address the problems of struck and lost in seal, walrus and whale hunting. *"The overall goal of the Workshop was to improve catch relative to effort, to reduce animal suffering and improve public image, and to formulate recommendations on methods, techniques and equipment to reduce struck and loss that are applicable at the local level"*⁷³.

Regarding the importance of struck and lost data (S&L), *"the SC further noted that better S&L rate data may not always be the priority parameter for improving assessments, given the difficulty of obtaining such data. However, given the importance of identifying S&L rates for some hunts more than others, it was agreed that one way forward was to direct WGs to indicate when more reliable S&L were a priority for improving the assessment and would make the most significant difference in terms of quota allocation, so the collection of S&L data could be prioritised for these hunts"*. The Scientific Committee also commented that Struck & Lost rates based on hunter interviews are often not reliable enough for use in assessments⁷⁴.

Struck & Lost data is only available for approximately 1/3 of the marine mammal hunts conducted in the waters of NAMMCO member countries⁷⁵.

Struck & Lost data for Greenland include (data 2013-2017):

- fin whales (range 0-17%, average 10%),
- humpback whales (range 0-14%, average 5%),
- minke whales using harpoon gun (range 0-1%, average 0%),
- minke whale collective rifle hunt (range 2-8% average 8%)
- narwhal (range 5-30%) and beluga (range 10-30%)⁷⁶
- walrus (range 12-14%)
- harp seal (range 21-26%)

Greenland's 2016 NPR notes that according to legislation, animals that are struck but lost should be reported. However, the scarcity of reports suggests that there is underreporting of struck and lost animals for beluga, narwhal and walrus⁷⁷.

Struck & Lost data for Iceland include:

⁷² <https://www.imr.no/temasider/sjopattedyr/hval/hvalfangst/en>

⁷³ NAMMCO 2006. Report of the NAMMCO workshop to address the problems of "struck and lost" in seal, walrus and whale hunting.

⁷⁴ NAMMCO 2018. Report of the 24th Scientific Committee meeting, November 2017, Reykjavik, Iceland.

⁷⁵ Struck and Lost NAMMCO/CHM-February/2018-4.

⁷⁶ SC 24 / JCNB JWG 2017.

⁷⁷ NAMMCO/26/NPR-G-2016.

- fin whales (0-2.6% 2009-2017)
- minke (0-8.5% 2009-2015)

Struck & Lost data for Norway include:

- minke whale (0.4-1.5% 2010-2015)

The Faroe Islands has not provided data on Struck & Lost.

2.2.3.7.3 Bycatch reporting

See section 2.2.2 for details on the genesis of the discussion on bycatch within NAMMCO. The following is a summary of data in the NAMMCO data spreadsheet. Since 2016 draft NPR table format for catch reporting also includes observed bycatch events.

Faroe Islands:

- For bycatch, Faroese fisheries relied on voluntary reporting. From 2000 to 2017, a small number (1-15) of cetacean and grey seals were caught in trawl, longline and gillnet fisheries and reported to the museum by fishermen⁷⁸. Since 2012/13 all fishing vessels larger than 15 GRT are required to have an electronic logbook with the possibility to report bycatches of marine mammals, but without any requirement on species identification. Since 2018, marine mammal by-catch can be identified as "seal" and "whale" and fisheries observers have been instructed to observe, report and identify all by-catches (Mikkelsen, pers. comm). No requirements exist for smaller vessels. By-catch data are included in NPRs.

Greenland:

- From 2000 to 2013, small numbers (1-3) of bowhead, humpback, common minke, and fin whales were reported in the NPR as having been caught in fishing gear for crabs, pond nets for cod and drift nets for salmon⁷⁹. Greenland provides the possibility for differentiating between direct catch and bycatch, as separate reporting of bycatch was introduced in 2013⁸⁰.

Iceland:

- Data shows reported number of bycaught harbour porpoises of 2559 between 2002-2017. These are reportedly from gillnets for the years 2002 to 2017 and lumpsucker nets from 2009 to 2017. Large numbers of grey (273 specimens) and harbour seals (705 specimens) are also caught. Other cetacean species as well as harp, hooded, ringed and bearded seals are also caught in relatively small numbers in the same gear types⁸¹. Iceland's 2017 NPR notes that bycatch was monitored in all fisheries in Icelandic waters through logbook submissions, reports from on-board inspectors and the annual gillnet survey⁸².

Norway

- Norway reported a "very high rate" of harbour porpoise bycatch in 2013. Since 2005, data collected by contracted small vessels from the commercial coastal fleet and therefore using the same nets, so called the Coastal Reference Fleet (CRF) have been used to estimate the total bycatch of harbour porpoises in fisheries for cod and

⁷⁸ PRP2018_32, Appendix 5 and SC/25/31: NAMMCO data spreadsheet.

⁷⁹ PRP2018_32, Appendix 5 and SC/25/31: NAMMCO data spreadsheet.

⁸⁰ SC/24/BYC/14

⁸¹ PRP2018_32, Appendix 5 and SC/25/31: NAMMCO data spreadsheet.

⁸² Iceland Progress Report on Marine Mammals in 2017

angler fish along the coast. The NAMMCO data spreadsheet, which compiles the number of bycatch events, but not fishing effort data, does not contain bycatch data from Norway⁸³, which is provided to the BYCWG.

2.2.3.7.4 Strandings reporting

A low number of strandings have been reported per year as follows⁸⁴:

- Faroe Islands (1-7 for 1994-2017) - highest number Northern bottlenose whale (36)
- Greenland (1-12 for 2007-2017) - highest number sperm whales (>15)
- Iceland (8-79 for 1994-2017) - highest number pilot whales (85), white beaked dolphins (77) and sperm whales (66)
- Norway does not request or collect data on strandings. It only records data on strandings anecdotally and does not report them to NAMMCO.

These data show no reporting of strandings by Norway, and none reported by Greenland after 2017.

On 1st July 2017, Norway adopted guidelines for the euthanasia of moribund large mammals that are stranded alive and cannot be set free. The implementation of these guidelines may lead to the development of guidelines for the collection and reporting of data for stranded mammals. Any data collected on stranded mammals will likely be based on the incidental discovery of those animals (and therefore biased towards larger specimens), and not based on systematic search efforts for strandings, due to the nature of Norway's coastline, which is mostly steep, not walkable and sparsely populated.

2.2.3.7.5 Hunting effort and Ship strikes reporting

The NAMMCO data spreadsheet contains no information related to "effort" and no data on ship strikes⁸⁵.

2.2.3.8 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.3.3

Answers from Survey respondents and interviewees to Q13 (criterion 1.3.3) and Q29 (criterion 2.2.2) are included in Appendix 7.

Q13 and Q29 are essentially overlapping. To Q13, which reflects criterion 1.3.3 ("*Extent to which NAMMCO Parties collect and share, in a timely manner, complete and accurate data on hunting activities (including catch statistics, hunting effort, struck & lost*"), four responded "Excellent", ten responded "Good", seven responded "Satisfactory" and, four "Unsatisfactory". The respondents gave a number of suggestions: 1) to look at this issue separating "*a) the sharing of data between NAMMCO Parties' scientific bodies, and b) the transmission of data from hunters to national scientific bodies*"; 2) that "better data on struck and lost particularly for Greenland" is needed; 3) that the "*failure of establishing any system of reporting of seal catch in Iceland, despite this having been a recommendation for more than a decade*" needs to be urgently resolved. On the other hand, the representative of one member government, in interviews conducted by the Panel, expressed the view that "*the issue of providing data in a timely manner is being addressed*".

To Q29, which reflects criterion 2.2.2 ("*Extent to which NAMMCO Parties collect representative and accurate data on hunting activities (catch statistics), hunting effort, struck*

⁸³ PRP2018_32, Appendix 5 and SC/25/31: NAMMCO data spreadsheet.

⁸⁴ PRP2018_32, Appendix 5 and SC/25/31: NAMMCO data spreadsheet.

⁸⁵ PRP2018_32, Appendix 5 and SC/25/31: NAMMCO data spreadsheet.

& lost, TTD”), responses were similar, with two who responded “unsatisfactory”. These two respondents characterized the problem as follows: “*To my knowledge Struck and Lost data are not well reported for many hunts*”; “*Format agreed for reporting catch, by-catch & strandings but not followed. [...] No agreed method and format reported for S&L*”. Other comments pointed out that “*is still unclear whether by-catch data are recorded as catch in GL or forgotten [...] There are no systematic recording of S&L data and no study going on at the moment. Catch statistics are not reported for several species*”, for example, Icelandic coastal seals and porpoises in Norway, Iceland and Faroes Islands.

2.2.3.9 PANEL’S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.3.3

[PRP18-RC15] The Panel **is of the view** that the most serious gap in the collection of data on hunting activities concerns the validation of reported catches of quota species in Greenland. The Panel **understands** that of the four NAMMCO Member Countries validation of reported catches has been the most challenging for Greenland given the geographical spread and relative isolation of some of the hunting communities and the comparatively large number of hunted species. In this regard, the Panel **notes** that a “quality review” of the catch data provided by Greenlandic hunters is now performed yearly. The Panel **recommends** that to the extent practicable, this “quality review” of catch data provided by Greenlandic hunters be continued and improved.

[PRP18-RC16] The Panel also **recommends** that the feasibility of implementing an electronic system for reporting catches of quota species (as has been done for non-quota species) be examined.

[PRP18-RC17] Currently data on bycatch and strandings are inconsistently reported in the NPRs and NAMMCO data spreadsheet to various Committees, Working Groups. The Panel **recommends** that these data be reported in a consistent manner.

[PRP18-RC18] With regard to Struck & Lost rates, the Panel **notes** that data is only available for approximately 1/3 of the marine mammal hunts conducted in the waters of NAMMCO member countries and **agrees** with the suggestion from the Scientific Committee that given the difficulty of obtaining such data, efforts should focus on those cases where more reliable struck and lost data are a priority for improving assessments that would make the most significant difference in terms of quota allocation. The Panel also **notes** the significant work done on this issue by the Committee on Hunting Methods including the preparation and distribution of a detailed document on this subject⁸⁶. However, the Panel **expresses concern** about the lack of an agreed standardised method and format to report struck and lost data and, as with the recommendations concerning bycatch and strandings above (PRP18-RC16 and PRP18-RC16), **recommends** that NAMMCO agrees, as soon as possible, to a standardised method and format to report struck and lost data. Because of the loss to the hunters when an animal is lost, in addition to issues of animal welfare, the Panel **recommends** that efforts to reduce Struck & Lost and to get reliable and accurate data on struck and lost data be continued.

[PRP18-RC19] With regard to bycatch, the Panel **notes** that data is scarce and sparse and, therefore, bycatch rates are unknown for most fisheries in all Countries. Known cases of this as a threat to populations are harbour porpoises, harbour and grey seals particularly in Norway and Iceland. For most other species and stocks, data are not sufficient to draw conclusions. However, Article 6 of the Fish Stocks Agreement notes that states should be more cautious when information is uncertain, unreliable or inadequate. In addition, Article

⁸⁶ NAMMCO/CHM-February/2018-4.

6 provides that the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures. Therefore, the Panel **recommends** that monitoring of bycatch with the use of inspectors and electronic logbooks be continued and that where bycatch numbers are high, efforts to reduce bycatch also be continued. See also section 2.2.2.3 (PRP18-RC7 and PRP18-RC8) for additional recommendations on this matter.

[PRP18-RC20] The Panel **notes** the low number of strandings reported and the absence of information on hunting effort and ship strikes in the NAMMCO data spreadsheet. Measures of hunting effort related to catches of some species could be obtained relatively easily from analyses of hunting licenses issued, logbooks and inspection and observation reports and interviews with hunters. The Panel **recommends** that ship strikes be reported more consistently.

[PRP18-RC21] Finally, with regard to the Greenlandic monitoring system of take, the Panel **notes** that increasing wildlife officers to collect appropriate data on takes does not seem impossible. The Panel **recognises** that such action would require commitments of funds for training new officers and maintaining their salaries. However, the Panel **suggests** that Greenland seriously considers this option as a medium or long-term solution, in the context of its priorities or related activities.

2.2.3.10 INTRODUCTION TO DETAILED CRITERION 1.3.4 "EXTENT TO WHICH SUCH DATA (ON HUNTING ACTIVITIES - CATCH STATISTICS, HUNTING EFFORT, STRUCK AND LOST) ARE GATHERED BY NAMMCO, SHARED AMONG PARTIES AND USED IN ASSESSMENT"

Please note that the first part of detailed criterion 1.3.4 (*"Extent to which such data (on hunting activities - catch statistics, hunting effort, struck and lost) are gathered by NAMMCO ..."*) is essentially the same as the first part of detailed criteria 1.3.3 (*"Extent to which NAMMCO Parties collect complete and accurate data on hunting activities"*). In this section we focus on the *"Extent to which such data (on hunting activities - catch statistics, hunting effort, struck and lost)" are "shared among Parties and used in assessment"*.

The primary purpose of collecting data on hunting activities is to use these, together with estimates of abundance and resource user knowledge, for the development and implementation of sustainable management measures. The extent to which such data are "collected" or "gathered" is addressed above in response to criterion 1.3.3 (see section 2.2.3.7).

Data related to hunting as well as data and data analyses from research programs, sighting and other surveys are shared between members of NAMMCO primarily through the submission of NPRs, meetings of the Scientific Committee and its working groups and meetings of the Committee on Hunting methods and its Expert Working Groups and workshops (see detailed criterion 2.3.1).

Data from the NASS surveys series have been shared primarily among NAMMCO members, within working groups (e.g., Working Group on Abundance Estimates⁸⁷, Large whale Assessment Working Group), but also with Canada, the U.S. and the Russian Federation and with the EU project SCANS III aerial and shipboard cetacean surveys in the European Atlantic waters. Data have also been shared at a wider scale during NAMMCO workshops (e.g. Workshop on Cetacean Abundance and Distribution in the North Atlantic, the Workshop on

⁸⁷ Abundance Estimates Working Group, May 2018, Copenhagen, Denmark.

Global Review of Monodontids⁸⁸ and the Symposium on the Impacts of Human Disturbance on Arctic marine mammals, with a focus on Belugas, Narwhals & Walrus).

NAMMCO data and information on hunting of harp and hooded seals have been shared with members of the ICES/NAFO/NAMMCO Working Group on harp and hooded seals for their assessment work since 2016.

Other examples of data sharing with non-NAMMCO members and with scientists for assessment purposes include the Workshops on Hunting Methods, the Expert Group meetings on TTD, and the meetings of the JCNB-NAMMCO Joint Working Group. For a full list of NAMMCO meetings see document PRP2018_07.

Scientific cooperation and collaboration that involves sharing of scientific data and expertise also exists between NAMMCO and ICES on a number of issues including ecosystem-based management and monitoring of bycatch of marine mammals⁸⁹ (see section 2.6.3.1.3). Article 4 d) of the NAMMCO Agreement specifically directs the Council to establish working arrangements with ICES⁹⁰. There is also cooperation between NAMMCO and the CAFF/CBMP of the Arctic Council.

Scientists from NAMMCO member countries also participate in and share data with the IWC Working Group on Abundance estimates established in 2016⁹¹.

2.2.3.11 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.3.4

Answers from Survey respondents and interviewees to Q14 are included in Appendix 7.

Q14 is relevant to detailed criterion 1.3.4 ("Extent to which such data are gathered by NAMMCO, shared among Parties and used in assessment"). Among 24 respondents, four responded "Excellent", 16 responded "Good", 3 responded "Satisfactory" and 1 responded "Unsatisfactory". The latter was due to a perceived lack of "*reliable catch data at the secretariat*". Additional comments pointed out that not much data is gathered directly by NAMMCO and that, in the assessments framework, when assessments are properly scheduled countries are diligent at gathering and sharing data during working groups.

2.2.3.12 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.3.4

[PRP18-RC22] The Panel **concurs** with the views expressed by 20 of the 24 survey respondents that NAMMCO's sharing of data related to marine mammal hunts and its use in assessment is at least "good". It also **notes** that proper planning of marine mammal species assessments is an efficient way to involve Member Countries in data sharing and exchange.

[PRP18-RC23] The Panel **recommends** that hunting data gathered by NAMMCO continue to be shared among NAMMCO member countries as well as with relevant scientists from non-member countries and IGOs, as appropriate. To this end, the Panel also **recommends** the establishment of a proper searchable 'NAMMCO catch database' and development of the necessary data sharing procedures and confidentiality agreements. The Panel **stresses** the importance that the official 'NAMMCO catch database' contains the same data used by Member Countries for their assessment. Central databases are key for proper management of wild marine resources, particularly those on mortality data and abundance and distribution. Therefore, the Panel **believes** that NAMMCO should also consider any future

⁸⁸ Global Review of Monodontids, March 2017, 2018 Hillerød, Denmark.

⁸⁹ NAMMCO and ICES Development of a cooperation.

⁹⁰ NAMMCO Agreement.

⁹¹ Abundance Estimates Working Group, May 2018, Copenhagen, Denmark.

NAMMCO catch database include all human-induced mortality (i.e., bycatch and ship strikes) and a sighting database. NAMMCO could explore the possibility to carry out these efforts in cooperation with other international organizations that are already managing similar databases (e.g. ICES, IWC, etc.).

2.2.3.13 INTRODUCTION TO DETAILED CRITERION 1.3.5 "EXTENT TO WHICH NAMMCO IS ADDRESSING ANY GAPS IN THE COLLECTION AND SHARING OF DATA AS REQUIRED"

Gaps in the collection of information related to marine mammal hunts in NAMMCO member countries identified in the Panel's response to detailed criterion 1.3.3 above include:

- Verification of reported catches in Greenland, particularly for non-quota species is problematic and, reporting for all species except walrus is at least one year late. Underreporting of Struck & Lost for beluga, narwhal and walrus;
- Iceland has no mandatory reporting system for seals catch;
- Faroe Islands – no reporting of harbour porpoise catch and no systematic reporting of grey seals shot in connection with salmon farms;
- Struck and lost data are only available for approximately 1/3 of marine mammal hunts conducted in waters of NAMMCO member countries;
- Strandings are not reported or are reported opportunistically by NAMMCO Member Countries: and,
- No information in the NAMMCO data spreadsheet related to effort and no data on ship strikes for any country.

These gaps are, to varying degrees, important for the conduct of assessments and the development and implementation of sustainable management measures. For example, regarding the importance of struck and lost data, the Scientific Committee (2017) *"noted that better S&L rate data may not always be the priority parameter for improving assessments, given the difficulty of obtaining such data. However, given the importance of identifying S&L rates for some hunts more than others, it was agreed that one way forward was to direct WGs to indicate when more reliable S&L were a priority for improving the assessment and would make the most significant difference in terms of quota allocation, so the collection of S&L data could be prioritised for these hunts"*⁹². At its 2018 meeting, the Scientific Committee recommended that further work with hunters to encourage honest reporting of S&L data be undertaken⁹³.

Concerning other gaps in data collection related to marine mammal hunts in Greenland listed above, Greenland is working to move towards an online real-time reporting for the catch data for non-quota species and, a quality review of the catch data provided by hunters is now performed yearly (see detailed criterion 1.3.3).

In 2013, NAMMCO recommended that that Greenland should take a closer look at the accuracy of catch data for harbour porpoises and killer whales. This work has not been completed.

Not all recommendations of the Scientific Committee related to the data gaps identified above have been addressed. For example, at SC20 (2013) the Scientific Committee *"reiterates the recommendation from SC19 to obtain numbers of total removals (bycatch and catch) for grey seals in Norway, Iceland and the Faroe Islands"*⁹⁴. At the same meeting

⁹² NAMMCO 2018. Report of the 24th Scientific Committee meeting, November 2017, Reykjavik, Iceland.

⁹³ NAMMCO *In press*. Report of the 25th Scientific Committee meeting, November 2018, MS Polarlys, Norway.

⁹⁴ NAMMCO 2014. Report of the 20th Scientific Committee Meeting, November 2013, Reykjavik, Iceland.

(SC20) the Scientific Committee noted the large uncertainty in catches of harbour porpoises and "*strongly recommends that Greenland provides a complete catch history including all types of under-reporting of catches before any future attempts are made to conduct an assessment of harbor porpoise in West Greenland*"⁹⁵. To date, work to address these recommendations remains incomplete. However, some progress has been made, such as (a) regular meetings of the BYCWG (especially if its recommendations are implemented) and (b) the deployment of observers on the pelagic fleet for mackerel and blue whiting in the Faroes with the mandatory reporting of marine mammal by-catch⁹⁶. Iceland and Norway have both increased their collection and analytical efforts and their human resources to obtain reliable by-catch estimate in several fisheries and implement the analytical recommendations put forward by the NAMMCO BYC Working Group.

2.2.3.14 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.3.5

Answers from Survey respondents and interviewees to Q15 are included in Appendix 7.

There were no responses as "Excellent", "Unsatisfactory" or "None". 14 responded "Good", 9 "Satisfactory".

2.2.3.15 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.3.5

[PRP18-RC24] The Panel **notes** that there are gaps in many aspects of data collection related to marine mammal hunts in NAMMCO member countries and that these are of varying significance. The Panel **understands** that the manner and degree to which these gaps are or can be addressed is a function of a number of issues, including the perceived stock status, the importance of the issue to producing improved assessments and possible increased quotas, and the ease, difficulty, practicality or cost of addressing the issue. Given limited budgets, the Panel **recommends** that the Council, on a regular basis, review priorities given to addressing identified gaps in data collection. It also **recommends** that Member Countries consider timely implementation of all relevant recommendations from the Council and the Management Committees.

[PRP18-RC25] As a general suggestion pertaining to criteria 1.3.1-1.3.5, 2.2.1 and 2.2.2, the Panels also **recommends** that in future performance reviews, these detailed criteria are reconsidered to avoid duplication and, possibly, to better evaluate all steps of "data sharing" and its milestones, by assessing them separately. In particular, the Panel **suggests** that the use of a standard template, respects for deadlines, data collection, transmission to central administration, transmission of data from central administration to NAMMCO Secretariat, and creation and maintenance of appropriate NAMMCO databases, be considered. In doing this, the Panel **recommends** the inclusion and revision of the current NAMMCO data sharing procedures in the discussion around a NAMMCO Strategic Plan, as data production and sharing is important for successful management. See also recommendation [PRP-18-RC23], which is relevant for a future NAMMCO database.

2.2.4 Quality and provision of scientific advice

Under the general criterion "Quality and provision of the Scientific Advice", the Panel considered the '*extent to which NAMMCO produces or receives the best scientific advice relevant to the marine mammal stocks under its purview, as well as to the effects of harvesting, research, conservation and associated activities on the marine ecosystem*'. This criterion is related to general criteria 1.1 (*Status of marine mammal stocks*), 1.2 (*Ecosystem*

⁹⁵ NAMMCO 2014. Report of the 20th Scientific Committee Meeting, November 2013, Reykjavik, Iceland.

⁹⁶ https://nammco.no/wp-content/uploads/2019/01/bycwg-october_2018_final-report_291118.pdf

approach) and 1.5 (*Quality and provision of management advice*). Therefore, all introductory sections under those criteria are relevant for the analysis of this general criterion.

AREA 1 – CONSERVATION AND MANAGMENT	
General criteria	Detailed criteria
1.4 Quality and provision of scientific advice	1.4.1. Extent to which NAMMCO produces or receives the best scientific advice relevant to the marine mammal stocks under its purview, as well as to the effects of harvesting, research, conservation and associated activities on the marine ecosystem.

2.2.4.1 INTRODUCTION TO DETAILED CRITERION 1.4.1 "EXTENT TO WHICH NAMMCO PRODUCES OR RECEIVES THE BEST SCIENTIFIC ADVICE RELEVANT TO THE MARINE MAMMAL STOCKS UNDER ITS PURVIEW, AS WELL AS TO THE EFFECTS OF HARVESTING, RESEARCH, CONSERVATION AND ASSOCIATED ACTIVITIES ON THE MARINE ECOSYSTEM"

NAMMCO receives scientific advice on the marine mammal status under its purview from the Scientific Committee. Its assessments should include '*the consideration of effects on populations of harvesting, research conservation and associated activities on the marine ecosystem*'. Particularly, according to the Scientific Committee Rules of Procedure, the Scientific Committee '*shall provide scientific advice to the Council on such matters that are referred to it, and ensure that this advice is based on the best available scientific findings at any given time. This includes review and evaluation of data on stock identity, biological parameters, stock size, catch history and other information necessary for conducting an assessment of the species or stock in question and for providing advice on catch limits and conservation*'. Article 6 of the Agreement creates a need for the Scientific Committee to collaborate with other organizations when possible ("*The Scientific Committee shall provide scientific advice in response to requests from the Council, utilizing, to the extent possible, existing scientific information*").

The NAMMCO Scientific Committee meets annually and is made up of national delegates and observers (including invited external experts). In 2010, the Council agreed to increase the size of each national delegation from up to three to up to six members⁹⁷. This Committee develops its agenda in relation to pending and new requests from the Council.

NAMMCO Council also receives advice on some of these aspects from other committees: the Management Committees (Management Committee for Cetaceans and Management Committee for Seals and Walrus); and the Committee on Hunting Methods,. In particular, the "*Management Committees make proposals for conservation and management measures to member countries*" (Article 5.1 of the Agreement). They "*also advise Council on needs and priorities for scientific research with respect to stocks of marine mammals*" (Article 5.1 of the Agreement). The Council's decisions on requests for future scientific advice are advised by these recommendations.

In addition, scientific advice developed by the scientific bodies of other international organizations, such as ICES, IWC Scientific Committee and the Joint Commission for the Conservation and Management of Narwhal and Beluga (JCNB), sometimes developed in cooperation with NAMMCO Scientific Committee, are used to inform the advice provided by NAMMCO Scientific Committee to the Management Committees and the Council. In some cases, this has caused an internal conflict due to differences in the management objectives of NAMMCO versus these other organizations regarding certain hunts. For

⁹⁷ NAMMCO Annual Report 2010.

example, in 2016 and 2018 the Scientific Committee's response to R-3.2.4 (quota on Humpback whales in West Greenland) was not accepted by either the Management Committee for Cetaceans or the Council^{98, 99}. The Scientific Committee's response and advice was based on the IWC's Aboriginal Subsistence Whaling Management Procedure (AWMP) (and *Strike Limit Algorithm*). The AWMP uses, among other things, the concept of "needs" to calculate quotas on whale species subject to aboriginal hunts unlike the IWC's Revised Management Procedure (RMP) which uses the maximum sustainable yield (MSY) (concept of '*science and sustainability*') of a stock, among other things, to set catch limits. See IWC technical guidelines for details and differences of these two management procedures ('The Revised Management Procedure (RMP) for Baleen Whales', 'Requirements and Guidelines for Implementations under the Revised Management Procedure (RMP)' and 'Requirements and Guidelines for Conducting Surveys and Analysing Data within the Revised Management Scheme', 'Draft Guidelines for AWMP Implementation Reviews')¹⁰⁰. NAMMCO's policy is that "need" should not be a factor in determining a catch limit as it has nothing to do with whether the proposed catch is sustainable. The full list of the 129 requests of advice of the Council to the Scientific Committee and their status is given in PRP2018_11. Of these, 21 were replaced by new requests (better characterizing the Council's request or updating it in light of the most recent needs or information), eight were outdated, 56 were completed and 44 are outstanding. The latter are outstanding because of an absence of data, expertise or other factors out of the control of the Scientific Committee.

NAMMCO also disseminate scientific knowledge and advice through its NAMMCO Scientific Publications Series. The NAMMCO Scientific Publications series makes available peer-reviewed scientific papers, which have contributed to the work carried out by the NAMMCO Scientific Committee. To date, NAMMCO has produced 11 volumes¹⁰¹, which are available through the University of Tromsø publishing site¹⁰². These volumes covered a wide range of topics, such as '*Ringed seals in the North Atlantic*', '*Minke whales, harp and hooded seals: Major predators in the North Atlantic ecosystem*', '*Seal worms in the North Atlantic: Ecology and population dynamics*', '*Belugas in the North Atlantic and the Russian Arctic*', '*Harbour porpoises in the North Atlantic*', '*Grey seals in the North Atlantic and the Baltic*', '*North Atlantic Sightings Surveys: Counting whales in the North Atlantic 1987-2001*', '*Harbour seals in the North Atlantic and the Baltic*', '*Walrus of the North Atlantic*', '*Age estimation of marine mammals with a focus on monodontids*' and '*North Atlantic Sightings Surveys - Counting whales in the North Atlantic 2002-2016*'.

As a very indirect and relative measure of impact of NAMMCO advice and the products of the NAMMCO Scientific Committee on the outside scientific community, a comparative analysis was made using queries on "Google Scholar" search engine¹⁰³. Google scholar '*provides a simple way to broadly search for scholarly literature. [...] you can search across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites*'¹⁰⁴.

These are the results from given "keywords":

⁹⁸ [NAMMCO 2017. Report of the 23rd Scientific Committee meeting, November 2016, Nuuk, Greenland.](#)

⁹⁹ [NAMMCO *In press*. Report of the 25th Scientific Committee meeting, November 2018, MS Polarlys, Norway.](#)

¹⁰⁰ IWC 2012, JCRM 13:485-517 and IWC 2013, JCRM 14:170-171.

¹⁰¹ <https://nammco.no/topics/scientific-publication-series/>

¹⁰² <https://septentrio.uit.no/index.php/NAMMCOSP/index>

¹⁰³ <https://scholar.google.com>

¹⁰⁴ <https://scholar.google.com/intl/en/scholar/about.html>

- "ICES": about 666,000 results; "International Whaling Commission": about 24,600 results; "OSPAR": about 23,400 results; "NAMMCO": about 2,940 results; "ACCOBAMS": about 2,010 results; "ASCOBANS": about 1,770 results.
- "IWC scientific committee": about 3,890 results; "ICES advisory committee": about 2,760 results; "NAMMCO scientific committee": about 179 results; "ACCOBAMS scientific committee": about 107 results; "ASCOBANS advisory committee": about 120 results.
- "ICES Journal of Marine Science": about 106,100 results; "Journal of Cetacean Research and Management": about 4,805 results; "NAMMCO Scientific Publications": about 938 results.

These numbers seem to reflect the age, number of contracting parties, structure and scope of these organizations, and the budget devoted to Scientific Committee activities and scientific publications. In terms of the impact of NAMMCO's scientific production on the outside scientific world, even though these results should be viewed with caution as they certainly include self-citations, given its scope, size and budget, the NAMMCO scientific committee seem to be relatively more considered by web users than other similar but bigger inter-Governmental advisory bodies. However, these results could simply reflect the fact that NAMMCO covers a wider range of species of marine mammals, whereas ACCOBAMS and ASCOBANS focus only on cetaceans.

2.2.4.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.4.1

Answers from Survey respondents and interviewees to Q16 are included in Appendix 7. Satisfaction on the quality of the scientific advice was 100%, with four "satisfactory", 16 "good" and eight "excellent". An additional comment highlighted that *"there are stocks/species where there have not been recent working groups, either because it is not a priority for NAMMCO Council and/or not much research is being done on these species"*.

Interviewees highlighted a few aspects, which are also important. These are:

- For stocks/species that were recently assessed, NAMMCO has received an excellent quality advice. However, there are stocks/species that were not recently or never assessed, either because they are not considered a priority for NAMMCO Council and/or not much research is being done on these stocks/species;
- Most of the advice is on potential/actual impacts of harvesting on stocks/species, little advice is provided on *'research conservation and associated activities on the marine ecosystem'*;
- The work schedule of the Abundance Estimates Working Group (AEWG) appears strongly driven by the IWC, because of the need for regular estimates of abundance for species under the RMP and the ASW. The work itself is also to some extent driven by the IWC; it is not uncommon in AEWG meetings for discussions at IWC Scientific Committee meetings to be referred to. One could question whether it is efficient for the same topic to be discussed in two different fora, especially as a number of key experts and scientists participate in both. NAMMCO focusses on collecting the data and generating the estimates; the IWC reviews these and focusses on how they are used in the RMP and AWMP context; and,
- Increasingly RFMO scientific committees are having to rely on getting most of their key analyses conducted by scientists other than those from the government research groups of their member countries. They achieve this through some combination of contracting such scientists and inviting them to attend their scientific meetings (see for example, the IWC Scientific Committee Invited Participants).

2.2.4.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.4.1

[PRP18-RC26] The Panel **notes** that the scientific production of NAMMCO has positively evolved throughout NAMMCO's history. The Panel **notes** that the advice received by the NAMMCO Council, the Management Committees and Member Countries from the Scientific Committee is of good scientific quality. The Panel **notes** that NAMMCO Member Countries have approved an increase in the number of national experts attending the Scientific Committee meetings from three to a maximum of six national delegates. However, it also **notes** that currently none of the Member Countries send six scientists (Faroes: one; Greenland: five; Iceland: four; Norway: five). Given the increased number of requests for advice from the Council, the Panel **recommends** Parties take advantage of the new rule to the greatest extent possible. The Panel also **suggests** that, given the limited availability of experts on assessments of the sustainability of quotas, budgetary considerations, and the requirement in the NAMMCO Agreement that the Scientific Committee "*utilize, to the extent possible, existing scientific information*", NAMMCO investigate a more structured cooperation with the IWC Scientific Committee and a more robust use of external expertise.

2.2.5 Quality and provision of management advice

Under the general criterion 1.5 "*Quality and provision of management advice*" the Panel considered two aspects: the "*extent to which NAMMCO produces the best management advice relevant to the marine mammal stocks under its purview based on the best scientific advice available to ensure the long-term conservation and sustainable use of marine mammals by NAMMCO Parties*" (detailed criterion 1.5.1) and the "*extent to which NAMMCO has applied a Precautionary Approach [as set forth in Article 6 of the 1995 UN Fish Stocks Agreement, including the application of precautionary reference points]*" (detailed criterion 1.5.2).

AREA 1 – CONSERVATION AND MANAGEMENT	
General criteria	Detailed criteria
1.5 Quality and provision of management advice	1.5.1. Extent to which NAMMCO produces the best management advice relevant to the marine mammal stocks under its purview based on the best scientific advice available to ensure the long-term conservation and sustainable use of marine mammals by NAMMCO Parties.
	1.5.2. Extent to which NAMMCO has applied a Precautionary Approach [as set forth in Article 6 of the 1995 UN Fish Stocks Agreement, including the application of precautionary reference points].

Detailed criterion 1.5.1 is directly related to detailed criterion 1.4.1 (*Extent to which NAMMCO produces or receives the best scientific advice relevant to the marine mammal stocks under its purview, as well as to the effects of harvesting, research, conservation and associated activities on the marine ecosystem*). It is also connected to general criteria 1.1 (*Status of marine mammal stocks*), 1.2 (*Ecosystem approach*) and detailed criterion 4.1.3 (*Extent to which NAMMCO has transparent, consistent and adequate advice-making procedures that facilitate the adoption by Parties of conservation and management measures and measures related to hunting methods in a timely and effective manner*).

See section 2.2.4.1 above for the introductory information on the Scientific Committee advice provided to the Council on the sustainability of takes on various species and populations.

2.2.5.1. INTRODUCTION TO DETAILED CRITERION 1.5.1 "EXTENT TO WHICH NAMMCO PRODUCES THE BEST MANAGEMENT ADVICE RELEVANT TO THE MARINE MAMMAL STOCKS UNDER ITS PURVIEW BASED ON THE BEST SCIENTIFIC ADVICE AVAILABLE TO ENSURE THE LONG-TERM CONSERVATION AND SUSTAINABLE USE OF MARINE MAMMALS BY NAMMCO PARTIES"

NAMMCO develops management advice for its Members based on the work of its various components including the Management Committees, the Scientific Committee, the Committee on Hunting Methods (CHM) and the Working Group on By-Catch, Entanglements and Live Strandings (BYCELS WG). As described in section 2.2.4.1 above, the Scientific Committee provides advice on the status of various marine mammals within NAMMCO's mandate. The relevant Management Committee, either the Management Committee for Cetaceans (MCC) or the Management Committee for Seals and Walrus (MCSW) reviews this advice and often includes it in a recommendation for a conservation and management measure to a member. However, the relevant Management Committee may, instead, ask the Scientific Committee for additional information as happened with the Scientific Committee's 2017 recommendations on the management of narwhals or decide not to support recommendations concerning scientific research, such as the timing of the next NASS. Data from NASS is necessary to provide new abundance estimates that are required for preparing new assessment for populations subject to hunts.

NAMMCO also provides advice on hunting methods that are developed by the Committee on Hunting Methods (CHM). Section 2.3.3.1 below describes the process for forming this advice in greater detail. The Committee often develops its recommendations in response to requests from the Council or member countries. It may also respond to questions generated by the Committee and approved by the Council. In addition, non-member governments with observer status may request advice from the CHM through the Council. The CHM's advice is based "*on the best available scientific findings, technological developments and traditional and local knowledge, with due consideration given to safety requirements, animal welfare and efficiency of utilization*".

Finally, the newly created BYCELS WG provides advice on animal welfare issues related to bycatch, entanglements, and live strandings. The work group provides advice on these issues in response to requests from the Council or individual NAMMCO members. Non-member governments that have status as a NAMMCO observer may also request input from the BYCELS Working Group through the Council. The Terms of Reference for the BYCELS Working Group direct it to develop its advice based on the best available scientific findings, technological developments, and traditional knowledge, with due consideration given to safety requirements for humans. See section 2.2.2.1 above for a more in-depth discussion of the work of the BYCELS Working Group. The CHM and the BYCELS Working Group advise the Council which may, in turn, provide recommendations to the members on these issues.

Concerning the process for developing and recommending conservation and management advice, the Panel highlights few examples that occurred on the advice provided by the the Scientific Committee at its 24th meeting (2017):

- Re-iterated previous advice from 2005 and 2012 on seasonal closures in Greenland for the hunt of beluga whales;
- [Based on the work of the JWG] recognized the hunting areas in East Greenland of *Tasiilaq*, *Kangerlussuaq*, and *Ittoqqortormiit* as three separate management areas for narwhal (Greenland);
- Recommended catches of less than ten narwhals per year in both *Ittoqqortormiit* and *Kangerlussuaq* (Greenland); and,

- Recommended no catches of narwhal south of 68°N in *Kangerlussuaq* fjord (Greenland)¹⁰⁵.

These recommendations were based on the best available scientific information and were the outcome of expert discussions (in some case carried out over several years). The Scientific Committee explained that while it recognized that the advice would result in a considerable reduction in catch available to communities in East Greenland, it believed that the reductions were required as in the most recent assessment there were declines in abundance. The Scientific Committee also recommended that the advice be updated with the new abundance estimates that would be developed based on a 2017 survey¹⁰⁶.

The Management Committee for Cetaceans declined to endorse any of these recommendations. The MCC did not explain why it was declining to endorse the recommendations for seasonal closures in the beluga hunt¹⁰⁷. However, Greenland explained that in the past it had not implemented "the recommended seasonal closures [for beluga] because it sees it as not sufficient to use seasonal closures to rebuild a stock that is not there, because of other non-hunting activities found in the areas, including fisheries activities"¹⁰⁸.

Concerning the three recommendations on the management of East Greenland Narwhal, the MCC requested that the Scientific Committee "provide a description of the criteria that are used for defining the management units." The MCC stated that it needed this information before it could endorse the Scientific Committee's advice on managing narwhal, because of "the severe effects the regulations can have on the local communities"¹⁰⁹. As the MCC did not endorse any of these recommendations, they were not considered by the Council¹¹⁰.

The Agreement clearly defines at least some of the roles and responsibilities of the various components of NAMMCO. Article 4.2 of the NAMMCO Agreement provides that "The functions of the Council shall be: ... (b) to establish appropriate Management Committees and coordinate their activities; ... (c) to establish guidelines and objectives for the work of the Management Committees; ... (e) to coordinate requests for scientific advice..." The Management Committees are described in Article 5.1 which provides that they "shall with respect to stocks of marine mammals within their respective mandates: (a) propose to their members measures for conservation and management; (b) make recommendations to the Council concerning scientific research. And Article 6.3 provides that "The Scientific Committee shall provide scientific advice in response to requests from the Council...."

NAMMCO has also developed Rules of Procedure for its various bodies. In some cases, these Rules of Procedure provide further information about the roles and responsibilities of the NAMMCO components to which they apply. The Rules of Procedure for the Scientific Committee provide, *among other things*, that "The Scientific Committee shall provide scientific advice to the Council on such matters that are referred to it and ensure that this advice is based on the best available scientific findings at any given time"¹¹¹. In contrast, the Rules of Procedure of the Management Committees are entirely procedural and

¹⁰⁵ NAMMCO 2018. Report of the 24th Scientific Committee meeting, November 2017, Reykjavik, Iceland, p. 9.

¹⁰⁶ NAMMCO (2018) Report NAMMCO MCC 6 March 2018 at 9

¹⁰⁷ NAMMCO (2018) Report NAMMCO MCC 6 March 2018 at 8.

¹⁰⁸ NAMMCO (2018) Report NAMMCO MCC 6 March 2018 at 8.

¹⁰⁹ NAMMCO (2018) Report NAMMCO MCC 6 March 2018 at 9.

¹¹⁰ NAMMCO Council meeting report 2018, p. 15.

¹¹¹ Rules of Procedure for the Scientific Committee I.1.

establish no standards for decision-making by the Management Committees. However, the Rules of Procedure for the Management Committees do provide some information about the role of the Management Committees. They state that the report of each meeting of a Management Committee "shall include any regulatory measures proposed by it, all decisions and recommendations adopted by it and references to all scientific information used or presented at the meeting"¹¹².

Neither the NAMMCO Agreement nor the various Rules of Procedure define the relationship between the Management Committees and the Scientific Committee. However, they do suggest that there are to be interactions between the two bodies. For example, the Management Committee reporting requirements make it clear that the Management Committees will receive and consider scientific information and the Scientific Committee is the NAMMCO entity responsible for providing scientific advice. Also, the Management Committees advise the Council on requests for scientific research. Presumably, the Management Committees develop these research requests based upon their need to fulfil their mandate to propose conservation and management measures to NAMMCO members.

2.2.5.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.5.1

Answers from Survey respondents and interviewees to Q17 are included in Appendix 7.

In regard to the question (Q17) on the 'extent to which NAMMCO produces the best management advice relevant to the marine mammal stocks under its purview based on the best scientific advice available to ensure the long-term conservation' there were only three unsatisfied respondents (9 "excellent", 15 "good" and 1 "satisfactory"). More specifically, these respondents highlighted that "[the answer is] *"good" where data are available, but data [is] lacking for some species"*; moreover, *"not much management advice is provided. In most cases the Management Committees just "Note" the scientific advice"*; and, finally, that is *"not clear why harvests continue on stocks that are unknown or over harvested"*.

2.2.5.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.5.1

[PRP18-RC27] The Panel **notes** that Criteria 1.4.1 and 1.5.1 are potentially duplicates, given that NAMMCO Scientific Committee activities are finalized to provide scientific advice for the sustainable use of marine mammals. It, therefore, **recommends** merging these two criteria in future Performance Reviews.

[PRP18-RC28] The Panel **is concerned** about the process for developing and recommending conservation and management advice. As currently implemented, it can result in actions by NAMMCO that can be construed as a rejection of the best available scientific advice as developed by the Scientific Committee. In addition, a lack of clarity in the way that the process works appears to have created tension between participants in certain NAMMCO bodies. The series of events described above has caused some to raise questions about the roles and responsibilities of the various components of the Commission including the Council, the Management Committees and the Scientific Committees. These questions include whether the MCC was acting beyond its authority by, for example, seeking to substitute its judgment for the judgment of the Scientific Committee concerning the validity of the criteria to be used to make a scientific determination about how to define the management units. Questions have also been raised about whether recommendations made by NAMMCO to its members about the conservation and management of marine mammals could be made solely to protect hunting interests without regards to impacts on the sustainability of a stock. These kinds of perceptions can damage the credibility of the

¹¹² Rules of Procedure for the NAMMCO Management Committees VI.1.

Commission. The Panel **recommends** that NAMMCO take steps to eliminate the chances that they will occur.

[PRP18-RC29] The Panel also **recommends** that the Council develop rules of procedure that define the relationship between the Management Committees and the Scientific Committees and how they will interact. These rules should confirm the particular areas of responsibility of the Management Committees and the Scientific Committees. They should also acknowledge the overlap in their work. These rules should address the Management Committees' use of the advice of the Scientific Committee in the development of conservation and management measures for NAMMCO members. The Panel **believes** that it would be better for NAMMCO if it avoids circumstances under which a Management Committee decides that it will not recommend the advice provided by the Scientific Committee to the relevant member(s) in a conservation and management measure. In the unusual circumstance in which a Management Committee does not adopt the advice of the Scientific Committee, the Management Committee should explain the reasons why clearly and transparently. The Panel **concludes** that the Scientific Committee would be better able to provide advice that considers the management objectives that are important to NAMMCO and its members, if the Management Committees would identify relevant management objectives when formulating recommendations concerning scientific research. Providing this information would help to eliminate situations in which the Scientific Committee provides advice that does not take into account relevant factors.

[PRP18-RC30] Panel also **recommends** that the Management Committees modify the language used to describe their response to the advice of the Scientific Committee. Currently, the Management Committees "*endorse*" or choose to "*not endorse*" Scientific Committee advice. This can be viewed as suggesting that the Management Committee has evaluated and made a decision about the quality of the information provided. The Panel **suggests** that instead the Management Committees should consider using "*supporting*" or "*noted, but not supporting*".

2.2.5.4 INTRODUCTION TO DETAILED CRITERION 1.5.2 "EXTENT TO WHICH NAMMCO HAS APPLIED A PRECAUTIONARY APPROACH [AS SET FORTH IN ARTICLE 6 OF THE 1995 UN FISH STOCKS AGREEMENT, INCLUDING THE APPLICATION OF PRECAUTIONARY REFERENCE POINTS]"

Principle 15 of the Rio Declaration on Environment and Development provides that "in order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall be not used as a reason for postponing cost-effective measures to prevent environmental degradation"¹¹³. The need to apply the precautionary approach in the fisheries context and to develop precautionary reference points is further confirmed in Article 5 and Annex II of the "1995 UN Fish Stocks Agreement"¹¹⁴. Article 5 and Annex II also provide guidance on how the precautionary approach should be implemented.

The basic features of the precautionary approach as it is applied to natural resource management are that it: 1) calls for more caution where the information used for decision-making is uncertain, unreliable or inadequate; 2) does not allow the absence of information to prevent or delay conservation action; and 3) defines, in advance, rules for how a natural

¹¹³ The Rio Declaration on Environment and Development (1992) at 3.

¹¹⁴ Formally, the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1992 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

resource will be managed if one of a set of predetermined events occurs. The 1995 UN Fish Stocks Agreement describes these predetermined events in terms of reaching reference points or levels, referred to as conservation (limit), precautionary and target reference points, that indicate the status of a population through a measure of the abundance of a particular stock¹¹⁵. Implementation of the precautionary approach requires collaboration between scientists and managers to define objectives that guide the choice of reference points or levels, particularly precautionary and target reference points and levels. Application of the precautionary approach is an answer to uncertainty in the management of natural resources.

NAMMCO is, of course, an advisory body and cannot apply the precautionary approach, as that term is used in the 1995 UN Fish Stocks Agreement, to the marine mammal stocks about which it provides advice. However, it can offer tools and information that allow its members to apply the precautionary approach to the stocks that they are managing. The ICES/NAFO/NAMMCO Working Group on Harp and Hooded Seals (WGHARP) has accomplished that by developing a framework approach for the management of harp and hooded seals. Under this approach, a reference level is established at the highest population level observed or inferred for a particular stock. Also, this approach sets a precautionary level at 70% of the reference level and a critical level at 30% of the reference level. Below the critical level, the population is considered to be in danger of serious harm while a population that falls between the critical and precautionary levels is a conservation concern¹¹⁶. WGHARP also recommended a set of decision rules for management actions to be taken if the stock reaches one of these predefined levels. Norway began to apply this framework to the management of Greenland Sea harp seals in 2010.¹¹⁷ Greenland reports that it has also applied the WGHARP recommendations to its harvest of the Northwest Atlantic stocks of harp and hooded seals which are shared with Canada.¹¹⁸

The Panel did observe that reports of various NAMMCO bodies contain references to the precautionary approach or the precautionary principle or taking action that is precautionary. A number of these references are to decisions to act more cautiously in instances where there is a high level of uncertainty often due to insufficient data about the status of a particular stock¹¹⁹ or efficiency of a particular killing method¹²⁰. Others refer to recommendations of harvest levels that would result in a particular stock being maintained above a particular level with a high degree of certainty¹²¹. While these activities are related to the precautionary approach as it is defined in the UN Fish Stocks Agreement, standing alone, they do not implement it.

¹¹⁵ 1995 UN Fish Stocks Agreement, Annex II, paras. 1-2.

¹¹⁶ NAMMCO Annual Report 2016, p. 194 (Report of the Scientific Working Group on Coastal Seals).

¹¹⁷ NAMMCO Annual Report 2011, p. 487 (Norway—Progress Report on Marine Mammals).

¹¹⁸ The PRP has been unable to find any documentation that the WGHARP recommendations concerning the management of Northwest Atlantic harp and hooded seals have been included in legislation or regulation.

¹¹⁹ For example, in 2005, the Management Committee advised that it was necessary to manage both the West Greenland beluga and narwhal stocks in a precautionary manner “in the face of uncertainty and apparently contradictory evidence.” (2005 NAMMCO Annual Report at 71, 72 (Report of the Management Committee))

¹²⁰ The Report of the 2004 NAMMCO Workshop on Hunting Methods for Seals and Walrus also referenced the need for a precautionary approach with respect to animal welfare as underlying its recommendation that “.22 Magnum ammunition not be allowed during the harp seal hunt given the need for additional field observations to complement a study on the lethality of that ammunition when used to kill young harp seals (“beaters”). (2004 NAMMCO Annual Report at 125.)

¹²¹ For example, in 2003, the Scientific Committee provided what it described as precautionary advice concerning catch of the Central Stock of the Minke Whale. Its advice was based on 20-year projections that showed “that under all scenarios considered, a catch of 200 minke whales per year would maintain the mature component of the population above 80% of its pre-exploitation level [and that] a catch of 400 per year would maintain the population above 70% of this level.” The Scientific Committee described this advice as precautionary because the results held under even the most pessimistic of scenarios. (2003 NAMMCO Annual Report at 141 (Report of the NAMMCO Scientific Committee))

2.2.5.5 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.5.2

Answers from Survey respondents and interviewees to Q18 are included in Appendix 7.

No one that was interviewed suggested that NAMMCO should not apply the precautionary approach in its work. However, some noted that the application of the precautionary approach can be difficult or that NAMMCO still needs to address how it should appropriately be applied. Others commented that "*excessive*" use should be avoided or that small quotas that may result from the application of the precautionary approach can be a problem. One interviewee noted that NAMMCO could improve its use of the precautionary approach to small cetaceans by defining objectives for the management of those stocks.

Comments from the survey demonstrated a range of views regarding the application of this criterion. One respondent felt that "*most of the management advice incorporates a Precautionary Principle*" although they noted that there were a few instances where the Scientific Committee had described the management objectives as not being precautionary. Another respondent found that the precautionary approach had been applied "*as required*" while a third respondent expressed the view that "precautionary reference points" have not been used at all. One survey respondent noted that NAMMCO had addressed several, but not all, of the paragraphs of Article 6 of the UN Fish Stocks Agreement. That respondent also stated that management strategies had not been defined for some stocks or had been established to reduce or maintain stocks at a level that was arbitrarily chosen. Another respondent wondered why stocks whose status was unknown or that were over-harvested were still hunted.

These comments notwithstanding, a majority of the respondents to the survey indicated that they believed that NAMMCO was doing an excellent or good job in applying the precautionary approach, while some felt that NAMMCO's application was satisfactory, and a small number described those activities as unsatisfactory or none. Additional comments pointed out that the precautionary approach is not applied to "*a few stocks*" (e.g., "*Faroese grey seals*" or "*Iceland & Norway grey and harbour seals*").

2.2.5.6 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.5.2

[PRP18-RC31] In the view of the Panel, NAMMCO and its members have recognized the importance of trying to adhere to at least some of the elements of the precautionary approach as that approach is set out in the UN Fish Stocks Agreement. However, the Panel **believes** that effort in support of one significant component of the precautionary approach is largely missing: the development of stock-specific reference points and associated management actions that will be automatically taken if a reference point is exceeded. This is an essential component of the precautionary approach, and, while noting that the 2005 Icelandic management plan for grey seal stock and Norway's 2011 management plan for grey and harbour seals do address this issue as do the reference points and management actions for hooded seals, the Panel **strongly recommends** that NAMMCO initiate work to determine how it can better support its members in using this tool in the management of marine mammal resources. Several of the regional fisheries bodies have had extensive consultations regarding the application of the precautionary approach, and some have developed processes for its implementation. As NAMMCO is unique, the Panel **recognizes** that it needs to establish its own process for contributing to the implementation of the precautionary approach by its Members. Nevertheless, the Panel **believes** that it would be useful to have the development of that process be informed by the experiences of other regional fisheries bodies. NAMMCO should also rely upon the lessons of the WGHARP in developing its framework approach for the management of harp and hooded seals.

2.2.6 Adoption of conservation and management measures

Criterion 1.6.1 is connected to general criteria 1.4 and 1.5.

AREA 1 – CONSERVATION AND MANAGEMENT	
General criteria	Detailed criteria
1.6 Adoption of Conservation and management measures	<p>1.6.1. Extent to which NAMMCO Parties have adopted and enforced management and conservation measures proposed by NAMMCO.</p> <p>1.6.2. Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice. [ADDED BY THE PANEL]</p> <p>1.6.3. Extent to which consistent/compatible management measures have been adopted for shared stocks by NAMMCO parties.</p> <p>1.6.4. Extent to which consistent/compatible management measures have been adopted for shared stocks by NAMMCO parties and non-NAMMCO Parties (e.g. Canada and Russia).</p> <p>1.6.5. Extent to which NAMMCO Parties have moved towards the adoption of conservation and management measures for previously unregulated takes, including new and exploratory hunting activities and bycatch.</p> <p>1.6.6. Extent to which NAMMCO Parties have taken due account of the need to conserve marine biological diversity and minimize harmful impacts of hunting activities and research on marine mammal stocks and marine ecosystems.</p> <p>1.6.7. Extent to which NAMMCO has proposed and Parties have adopted and are implementing effective rebuilding plans for depleted or overhunted stocks.</p>

2.2.6.1 INTRODUCTION TO DETAILED CRITERION 1.6.1 "EXTENT TO WHICH NAMMCO PARTIES HAVE ADOPTED AND ENFORCED MANAGEMENT AND CONSERVATION MEASURES PROPOSED BY NAMMCO"

Article 5 of the NAMMCO Agreement provides, in part, that the "*Management Committees shall with respect to stocks of marine mammals within their respective mandates [...] propose to their members measures for conservation and management [...]*" In keeping with this mandate, NAMMCO, first through the Management Committee, and more recently through the Management Committee for Seals and Walruses and the Management Committee for Cetaceans, has recommended to each of its members, various management and conservation measures related to the harvest of marine mammals. NAMMCO members have adopted some, but not all, of the recommendations made.

Instances in which NAMMCO members have adopted legislation or regulations that implement recommendations from NAMMCO include, but are not limited to, management measures for: North Atlantic bottlenose whale¹²²; East Greenland Narwhal¹²³; North Atlantic Fin Whales (both the East Greenland/Iceland stock and the Faroe Islands stock)¹²⁴; Central North Atlantic Minke Whales¹²⁵; West Greenland humpback whales¹²⁶; grey and harbour seals (Greenland)¹²⁷; grey seals (Norway); grey seals (Iceland) and Long-finned pilot whale¹²⁸.

¹²² NAMMCO Annual Report 1995, p. 11. The Management Committee concluded that the harvest of fewer than 300 animals per year is unlikely to lead to a decline in the stock. This species has not been assessed since 1995

¹²³ NAMMCO Annual Report 2009, p. 97.

¹²⁴ NAMMCO 9, 13, 16, 19 and 24 Annual Reports.

¹²⁵ NAMMCO 9, 13, 16, 19 and 24 Annual Reports.

¹²⁶ NAMMCO 16, 17, 18, 19 and 24 Annual Reports.

¹²⁷ NAMMCO Annual Report 2010, p. 110.

¹²⁸ NAMMCO Annual Report 2011, p. 36.

There have only been a few instances in which a NAMMCO member has declined to implement NAMMCO recommendations concerning the management of a particular stock. With respect to the harvest of walrus in West Greenland, The Government of Greenland set the struck and lost level in Qaanaaq at 3% rather than the 11% level recommended by NAMMCO. The advice from NAMMCO was followed for the rest of Greenland¹²⁹.

There are also cases where a member has initially declined to implement Recommendations that have been proposed by NAMMCO. Declining to implement a Recommendation in whole or in part is, arguably, consistent with the agreement.

Over a period of at least seven years for beluga and six years for narwhal, the quotas implemented by Greenland reflected significant steps towards the sustainable management of those species but were above the quotas recommended by NAMMCO and/or the Canada/Greenland Joint Commission on Conservation and Management of Narwhal and Beluga (JCNB).^{130,131} In 2000, the NAMMCO Scientific Committee concluded that the West Greenland beluga stock was substantially depleted, that harvest rates were several times higher than sustainable levels, and that if this pattern continued, the stock would likely be extinct within 20 years. The assessment estimated that a sustainable level of harvest was around 100 animals, and certainly not more than 150. The Scientific Committee also noted that an immediate reduction in catch to 500 animals, with further reductions to 100 animals over a one to three-year period would halt the decline in abundance and make the risk low that the population abundance in 2011 would be lower than that in 2001.¹³²

In November of 2000, Greenland made the decision, in principle, to introduce harvest quotas for both beluga and narwhal.¹³³ A draft regulatory proposal was prepared, public hearings were held and the regulatory proposal was revised.¹³⁴ Consultations were also held with the Hunting Council.¹³⁵ Those quotas were put in place in July of 2004.

In 2001, the Scientific Committee Working Group on the Population Status of Narwhal and Beluga in the North Atlantic met with the JCNB as the Joint Working Group (JWG). Among other things, the JWG conducted assessments of the stock of narwhals in West Greenland. The assessments showed that the West Greenland narwhals were depleted to about one quarter of pre-harvest levels and that continued harvest at the current level may result in the extinction of West Greenland Narwhals in the near future. There was general agreement in the JWG to recommend that narwhal removals in West Greenland be limited to 135 individuals. The JWG also recommended that hunting for narwhal in Melville Bay be prohibited unless it could be demonstrated that there is not a discrete summer stock¹³⁶.

The JWG met again in 2004 and 2005 and discussed both beluga and narwhal. For both species the JWG arrived at conclusions similar to those that they had previously reached¹³⁷. One new piece of advice was that Greenland should implement seasonal closures to the harvest of belugas in several areas. The purpose of the closures was to protect the few

¹²⁹ NAMMCO Annual Report 2015, p. 75.

¹³⁰ The JCNB provides management advice for the narwhal and beluga stocks that are shared by Greenland and Canada. NAMMCO Annual Report 2001, p. 100.

¹³¹ NAMMCO Annual Report 2005, p. 11.

¹³² NAMMCO Annual Report 2001, p. 17-18.

¹³³ NAMMCO Annual Report 2001, p. 57.

¹³⁴ NAMMCO Annual Report 2001.

¹³⁵ NAMMCO Annual Report 2002.

¹³⁶ NAMMCO Annual Report 2003, p. 13-15.

¹³⁷ NAMMCO Annual Report 2005, p. 23.

belugas that remain from historical summer aggregations¹³⁸. Notwithstanding these recommendations, Greenland decided to set the quotas for both narwhals and belugas in West Greenland at a level that was higher than recommended¹³⁹. The recommended quota levels and the quota levels set by Greenland for both beluga and narwhal are set out in Table 3 below. Greenland also declined to implement the recommendations that other areas be closed on a seasonal basis to the beluga hunt. Greenland explained that it did not believe that seasonal closures would be sufficient to rebuild a stock that was not there, a result, Greenland argued, that may be attributed to non-hunting activities in the area¹⁴⁰.

In 2009, Greenland established multi-annual catch quotas for beluga whales that were based on the recommendations of the JWG and that would rebuild the stocks over time and ensure the sustainability of catches over the long-term¹⁴¹. Since 2010, the catches of beluga in Greenland has been below the quotas recommended by NAMMCO.

New modelling by the Joint NAMMCO/JCNB SCWG in 2009 for West Greenland narwhal resulted in population estimates that were higher than in previous assessments. The Scientific Committee explained that this change resulted from new abundance estimates for the two summer aggregations in West Greenland. As a result, the advice on safe harvest levels went from previous recommendations that ranged between 15 to 75 whales a year to 185 to 310 whales per year depending on the level of probability (ranging between 95% and 70%) of achieving management objectives.¹⁴²

Table 3 - Recommended quota levels set by Greenland for beluga and narwhal (2004/2005 – 2009/2010)

Year or season	Beluga Quotas			Narwhal Quotas		
	Stock	Quota recommended	Quota Applied	Stock	Quota recommended	Quota Applied
2009/2010	Qaanaaq		20	East	85	85
2009/2010	West	100	290	West	310	310
2008/2009	Qaanaaq		20	East	No quota	No quota
2008/2009	West	100	240	West	135	384
2007/2008	Qaanaaq		20	East	No quota	No quota
2007/2008	West	100	137	West	135	292
2006/2007	Qaanaaq		20	East	No quota	No quota
2006/2007	West	100	150	West	135	379
2005/2006	Qaanaaq		10	East	No quota	No quota
2005/2006	West	100	210	West	135	310*
2004/2005	Qaanaaq		20	East	No quota	No Quota
2004/2005	West	100	300	West	135	300

Note: The figures in this table have been provided to the Panel by the Government of Greenland. They differ, in some respects, from figures reported in various Commission reports including the 2007-2008 NAMMCO Annual Report and the 2010 NAMMCO Annual Report.
 *Greenland originally set a quota of 260 animals which was raised to 310 in October 2005 "mainly because hunter observations suggested that narwhal numbers were larger than expected and because the original quota was exceeded."¹⁴³

With one exception, Greenland has continued to implement quotas for narwhal in accordance with the recommendations of the Scientific Committee and the JCNB. The one exception occurred in 2014 when the quota for West Greenland narwhal was set at 30

¹³⁸ NAMMCO 2018. Report of the Management Committee for Cetaceans, p. 7.

¹³⁹ Greenland has pointed out that is required by law to consider local and traditional knowledge in adopting conservation and management measures for marine mammals (Greenland Parliament Act no. 12 of October 29 1999 concerning Harvesting and Hunting). This information was used to set the quotas for narwhals and belugas.

¹⁴⁰ NAMMCO 26 Report of the Management Committee for Cetaceans (MCC) at 7-8 (2018).

¹⁴¹ NAMMCO Annual Report 2008, p. 37.

¹⁴² NAMMCO Annual Report 2009, p. 96.

¹⁴³ NAMMCO Annual Report 2005, p. 69.

animals higher than recommended¹⁴⁴. Greenland explained that the decision to add the 30 additional animals was taken by the Greenland Cabinet and that this was an anomaly.

2.2.6.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.6.1

Answers from Survey respondents and interviewees to Q19 are included in Appendix 7.

The vast majority of respondents to the survey believe that NAMMCO members are doing a good job of adopting and enforcing management and conservation measures proposed by NAMMCO. A couple of respondents felt that NAMMCO members' performance on this criterion was excellent and a couple thought it was unsatisfactory, while a few more felt that the performance was satisfactory. In their written comments, several respondents noted that the advice was generally implemented although a few noted that there were some exceptions, noting Greenland's management of beluga, narwhal and walrus or pending implementation of recommendations on the management of seals in the Faroe Islands and Iceland.

During the interviews, one respondent noted that there had been problems with Ministers not following NAMMCO advice for political reasons. Other respondents noted that Greenland had occasionally set quotas for narwhals and walruses that exceeded recommended levels and had not followed advice that beluga hunting should not be permitted in areas in which the animal had been extirpated. However, another respondent noted that the ability of NAMMCO to get Greenland to implement difficult recommendations was a sign of NAMMCO's success. During a couple of interviews, the failure of the Faroe Islands to implement recommendations concerning observers was raised. A different interviewee observed that the NAMMCO members do not challenge each other regarding implementation of management advice.

2.2.6.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.6.1

[PRP18-RC32] The Panel **finds** that NAMMCO members have, for the most part, adopted the conservation and management measures proposed by the Commission, although there have been some instances in which they have not. For purposes of transparency and maintaining the credibility of the organization, the Panel **believes** that it is imperative that instances of not implementing NAMMCO advice should be kept to a minimum, or even better, eliminated. If a NAMMCO Member Country decides that it must choose not to implement or fully implement a recommendation, the Member Country should publicize that decision, including with a public notification to the Council that includes a detailed explanation of why the Member Country has chosen not to implement the measure and to detail what measures the member intends to take instead. The Member Country should also identify whether any substitute action is expected to have the same impact as the proposed measure.

2.2.6.4 INTRODUCTION TO DETAILED CRITERIA 1.6.2 AND 2.4.2 "EXTENT TO WHICH NAMMCO PARTIES INVOLVE RESOURCE USERS IN DECIDING HOW TO IMPLEMENT NAMMCO ADVICE"

In Greenland, all proposed regulatory actions related to the management of marine resources, including quota setting, are subject to public review and comment¹⁴⁵. Greenlandic law also requires that user knowledge be taken into account in the decision-making process for the management of marine resources, including in response to

¹⁴⁴ NAMMCO Annual Report 2014, p. 58.

¹⁴⁵ Greenland Parliament Act no. 12 of October 29 1999 concerning Harvesting and Hunting.

NAMMCO advice¹⁴⁶. For example, with respect to the implementation of advice on the management of West Greenland beluga whales and West Greenland narwhal, proposed regulations were subject to public review and comment and the Government consulted with the Council of Hunters. Compliance with the requirement to take into account user knowledge is also supported by Greenland's PISUNA (opening doors to native knowledge) programme. This programme gathers, systematically documents, summarizes and provides access to local knowledge about exploited natural resources in a searchable, almost real-time, online database¹⁴⁷. In addition to the aforementioned efforts, the Greenland Institute of Natural Resources has hired personnel to focus on these issues¹⁴⁸. Other efforts have included an initiative by the Ministry of Fisheries, Hunting and Agriculture to launch an information campaign for the public in north and east Greenland on the topic. The program focuses primarily on narwhal and beluga and whales¹⁴⁹.

Iceland views the implementation of advice from NAMMCO as a scientific matter and, therefore, does not engage resource users in that process¹⁵⁰.

The Panel did not find information on how the Faroe Islands and Norway engage resource users in implementing NAMMCO advice.

2.2.6.5 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERIA 1.6.2 AND 2.4.2

Answers from Survey respondents and interviewees to Q20 are included in Appendix 7. Almost half of the respondents to the survey felt that NAMMCO members did a good job of involving resource users in deciding how to implement NAMMCO advice. Slightly fewer felt that the performance of the members on this criterion was satisfactory. Several respondents characterized the members performance as excellent while a couple characterized it as unsatisfactory.

A majority of the comments received on the survey focused on how the NAMMCO process worked, rather than on how the process in each country worked. Nevertheless, the Panel believed that it would be informative to discuss both issues as we also did in the general review above.

The comments included in the survey results were mixed with respect to views about how NAMMCO performed with respect to this criterion. One respondent found that the results were mixed. They identified this as an area that could use some work, noting contradictory guidance about whether hunters could attend a working group. They also expressed the view that while they didn't believe that hunters should be at every meeting or attend the entire meeting, there could be more discussion between scientists and resource users. Another respondent felt that the process takes into account the views of users, including for science and management. A third respondent felt that they could not evaluate NAMMCO's performance on this criterion now although they felt that NAMMCO always tried to involve stakeholders outside of NAMMCO when shared stock are considered. Finally, a respondent commented that for Norway and Greenland user involvement in decision-making is generally good, while with Iceland and the Faroe Islands there might not be any user participation.

None of the interviewees commented on this criterion.

¹⁴⁶ NAMMCO Annual Report 2016, p. 52.

¹⁴⁷ NAMMCO Annual Report 2016, p. 52.

¹⁴⁸ NAMMCO Annual Report 2001.

¹⁴⁹ NAMMCO Annual Report 2015, p. 52 (report of the Joint Meeting of the Management Committees.)

¹⁵⁰ Email from Iceland during the review process.

2.2.6.6 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERIA 1.6.2 AND 2.4.2

[PRP18-RC33] The Panel **recommends** that all NAMMCO members maintain robust practices for involving relevant stakeholders in the process of implementing NAMMCO advice. This will lead to better implementation of NAMMCO's recommendation and enhance NAMMCO's credibility. The Panel **finds** that Greenland engages resource users (hunters) on implementing NAMMCO advice. This view found support from at least one of the respondents to the survey. Greenland also considers traditional knowledge in the implementation process. The Panel **also finds** that Iceland has a policy of not engaging resource users in the implementation of NAMMCO advice. The Panel **recommends**, that Iceland find ways to engage resources users in the implementation of NAMMCO advice, as appropriate. The Panel **notes** that while some of the recommendations provided by NAMMCO may be purely based on science, many are not. Those would include many of the recommendations based on the work of the CHM. Even with respect to the implementation of recommendations based purely on science, choices will need to be made about how to implement and often information from stakeholders can usefully inform decision-making.

[PRP18-RC34] The Panel **notes** that detailed criteria 1.6.2 (*"Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice" in the area of "Adoption of Conservation and management measures"*) and 2.4.2 on the *"Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice in the area of "Adoption of advice on Hunting Methods and transcription in legal instruments"* are essentially the same. Therefore, the Panel **suggests** that, in future Performance Review, these criteria being merged.

2.2.6.7 INTRODUCTION TO DETAILED CRITERION 1.6.3 "EXTENT TO WHICH CONSISTENT/COMPATIBLE MANAGEMENT MEASURES HAVE BEEN ADOPTED FOR SHARED STOCKS BY NAMMCO PARTIES"

Within the NAMMCO area, there are cetacean species and stocks that are hunted by more than one NAMMCO member.

Greenland and Iceland both hunt fin whales. Although particular stocks of fin whale have not been defined with certainty, the International Whaling Commission (IWC) has defined management units based primarily on summer feeding concentrations. The bulk of Greenland's fin whale harvest is from a management unit (West Greenland) that is distinct from the management units (West Iceland and East Iceland) in which Iceland hunts.

In Greenland hunting is regulated and administered by the Ministry of Fisheries, Hunting and Agriculture and supervised by the Fisheries Licence Control Authority. The IWC establishes the fin whale catch quota for Greenland. When the IWC has failed to agree upon a quota, then Greenland set a quota based on advice from the Scientific Committees of the IWC or NAMMCO.

In Iceland, whaling is under the authority of the Icelandic Ministry of Fisheries and Agriculture. Catch limits are based on advice from the Marine and Freshwater Research Institute (MFRI). The advice from the MFRI is based on scientific assessments conducted within the Scientific Committees of NAMMCO and the IWC.

Greenland, Iceland and Norway all hunt common minke whales. The IWC has divided the North Atlantic common minke whale stock into three management stocks: the Northeast Atlantic, including the Barents, Norwegian and North seas; the Central Atlantic, including waters around Jan Mayen, Iceland and East Greenland; and the Western Atlantic, including West Greenland and the Canadian East Coast. These are also divided into smaller sub-stock areas ("small areas"). However, the original stock and sub-stock divisions were not based on

extensive biological information, and recent examination of mainly genetic data has failed to provide clear evidence of stock structure amongst common minke whales in the North Atlantic¹⁵¹.

Although the NAMMCO Scientific Committee has agreed that there is likely only one breeding stock of common minke whales in the north Atlantic, they have also agreed to use three management areas: West, Central, and East¹⁵². As a conservative approach to management, the Scientific Committee has based allowable catch advice on smaller sub-areas within the Central Area. These stock boundaries are considered operational to lessen the chances of depletion in any one area, rather than being real biological boundaries. The stocks in each of the areas in which NAMMCO members hunt have been assessed and, although there has been some fluctuation in levels of abundance in some of the areas, the scientific committee considers the hunts sustainable at current levels.

Norway sets its own national common minke whale quotas using advice from the NAMMCO Scientific Committee and the RMP implementation for the Northeast Atlantic stock developed by the IWC Scientific Committee. This implementation is reviewed every five years by NAMMCO's Scientific Committee. The quota is subdivided into small areas to spread the catch out over the stock area and reduce the risk of overexploitation. Whaling is restricted to the spring and summer seasons.

In recent years Iceland has set its common minke whale quota in accordance with advice from NAMMCO. Recent quotas have been around 250 animals annually. Actual catches have been considerably less.

Greenland's quota for minke whales is established by the IWC. The most recent recommended quotas for minke whales in Greenland are 20 animals for East Greenland and 164 for West Greenland with defined carry-over provisions.

Greenland raised a question to the MC of whether NAMMCO has a shared policy of how to divide quotas, or whether there could be future discussions in NAMMCO of how to share quotas and advice for shared resources. Greenland suggested that bilateral dialogues between member countries would be a good way forward in allocation of resources from shared stocks.

The Faroes Islands noted that they support the principle that when there are shared stocks between member countries, the countries come to an agreement on how to share these stocks¹⁵³.

Long-finned pilot whales are hunted in Greenland and the Faroe Islands. Hunts in Greenland occur off both the west and east coasts. Greenland has not established quotas for pilot whales, although there is an ongoing request that the Scientific Committee "*complete a full assessment of pilot whales in the North Atlantic and provide advice on the sustainability of catches [...] with particular emphasis on the Faroese area and East and West Greenland*"¹⁵⁴. There are also no quotas in the Faroe Islands although the 23 beaches where whales are harvested or entire whaling districts are closed when harvests are considered sufficient. The

¹⁵¹ International Whaling Commission. 2014a. Report of the AWMP/RMP Joint Workshop on the stock structure of the North Atlantic common minke whale. SC/65b/REP04; International Whaling Commission. 2014b. Implementation Review for North Atlantic common minke whale. SC/65b/RMPWP24

¹⁵² NAMMCO Annual Report 2015, p. 202 (Report of the Scientific Committee).

¹⁵³ NAMMCO Annual Report 2015, p. 59.

¹⁵⁴ NAMMCO Annual Report 2018, NAMMCO MCC 6 March 2018, p. 11.

Faroe Islands also has regulations governing hunting methods, including allowed beaches and equipment, as well as resource sharing¹⁵⁵.

Although the stock structure of the North Atlantic population of the long-finned pilot whale is uncertain, there is some evidence suggesting that there are at least two stocks in the North Atlantic. A full assessment was conducted in 1997 and a partial assessment in 2012 in the eastern North Atlantic, the area in which the Faroe Islands drive hunt occurs and the removals were considered sustainable. On the other hand, there has been no assessment in west Greenland where much of Greenland's removals occur.

Both the Faroe Islands and Greenland have reported removals of Northern bottlenose whales. Greenland has reported directed catches but validation of these catches has revealed that they are actually catches of harbour porpoises that have been misreported¹⁵⁶. Faroe Islands experiences some live strandings. There is only one abundance estimate for this stock so no trend in abundance has been established. Neither member engages in any management of the species. In the Faroe Islands, Northern bottlenose whales are protected, although stranded animals, which cannot be refloated may be harvested. These stranded animals are considered public property and the Government has the authority to decide how such resources will be allocated. Northern bottlenose whales are not managed in Greenland.

Atlantic white-sided dolphins have been reported to be hunted in the Faroe Islands, Greenland, Iceland, Norway (past, now protected)¹⁵⁷ and Canada¹⁵⁸. Neither the Faroe Islands nor Greenland have quotas or catch limits for Atlantic white-sided dolphins although both report harvest numbers annually. Atlantic white-sided dolphins are considered abundant throughout their range although there is not enough data available to provide current population estimates. There is an ongoing request that the Scientific Committee carry out an assessment of Atlantic white-sided dolphins.¹⁵⁹

In some cases decades ago, white-beaked dolphins were the subject of small-scale hunting for food in the Faroe Islands¹⁶⁰, Greenland, Iceland (now protected) and Norway (now protected)¹⁶¹. Greenland has no quotas or catch limits for white-beaked dolphins. They report harvest numbers annually. While no clear stocks have been identified, some limited information on the population structure suggests that there may be separate stocks. There are no indications that the limited number of removals that occur threaten the sustainability of the species or any of its stocks. There is an ongoing request that the Scientific Committee carry out an assessment of Atlantic white-beaked dolphins¹⁶².

There are also several pinniped stocks that are harvested by more than one NAMMCO member.

¹⁵⁵ Ministry of fisheries: <https://www.whaling.fo/>

¹⁵⁶ NAMMCO 15 Annual Report at page 63 (2015).

¹⁵⁷ The NAMMCO website lists Norway among the countries where there is small scale hunting of Atlantic white-sided dolphins (<https://nammco.no/topics/atlantic-white-sided-dolphin/#1475844711542-eeef1c7b-5dde>) although according to the catch tables provided by the Secretariat, during the period Norway has not reported any catches of Atlantic white-sided dolphins.

¹⁵⁸ <https://nammco.no/topics/atlantic-white-sided-dolphin/#1475844711542-eeef1c7b-5dde>.

¹⁵⁹ NAMMCO (2018) Report NAMMCO MCC 6 March 2018, p. 11.

¹⁶⁰ <https://nammco.no/topics/white-beaked-dolphin/#1475844711542-eeef1c7b-5dde> citing "Lien J, Nelson D and Hai D J (2001) Status of the White-beaked Dolphin, *Lagenorhynchus albirostris*, in Canada. *Can. Field-Nat.* 115(1): 118-126; and Hammond P S, Bearzi G, Bjørge A *et al.* (2012) *Lagenorhynchus albirostris*. The IUCN Red List of Threatened Species 2012: e.T11142A17875454. <http://dx.doi.org/10.2305/IUCN.UK.2012.RLTS.T11142A17875454.en>".

¹⁶¹ Based on the catch database prepared by the Secretariat, only Greenland has reported catches of white-beaked dolphins. Greenland combines its reporting of Atlantic white-sided dolphins and white-beaked dolphins.

¹⁶² NAMMCO Annual Report 2018, NAMMCO MCC 6 March 2018, p. 11.

The Greenland Sea stock of the Harp seals is hunted by both Norway and Greenland. While Norway imposes a quota on its catch, Greenland does not, based on GINR advice. The size of the stock has been increasing through 2015. The most recent assessment of this stock in 2016 concluded that the current level of removals is sustainable.

The Greenland Sea Hooded seal stock is considered to be of great conservation concern as the size of the stock is less than 30% of the maximum estimated historical size. The size of the stock continues to decrease despite severe reductions in removals in 2007 (quota set to zero). Consistent with NAMMCO recommendations, Norway only permits a small scientific catch and Greenland permits a direct catch in *Ittoqqortoormiit* in northeast Greenland through which few or no animals have been taken over the last few years.

The grey seal stock is harvested by both Norway and Iceland. In Faroe Islands, grey seals found around fish farms may be killed. In Greenland, grey seal have been protected¹⁶³ since they were described as a new species in 2010.

Norway has adopted management plans for its coastal seals. The goal of the management plans is to ensure that viable populations of harbour and grey seals remain within their natural distribution areas¹⁶⁴. In 2016, the Scientific Committee concluded that the relevant hunts were managed well under these plans but made recommendations about how to update the plans¹⁶⁵. Grey seals are monitored by counting pups and the government decided that the population should be stabilized so that 1,200 pups can be recorded annually. While the objective of the management plan was not set on a biological basis, the quotas are based on scientific advice in accordance with the management plan.

In 2005, the Icelandic government adopted a management plan for the grey seal stock which called for action to be taken if the grey seal population fell below the estimated level in 2004 of 4,100 animals¹⁶⁶. Iceland's Marine Research Institute (MRI) stressed the importance of regular monitoring of the stock. In 2015, the MRI again stressed the importance of data and stated that absent new abundance estimates for grey seals and harbour seals it would be unable to evaluate whether the management targets for these species were being met¹⁶⁷. That year the NAMMCO Scientific Committee made several recommendations to Iceland concerning the management of grey seals. These recommendations called for, among other things, the development of a management plan that included specifications on the frequency of surveys and an evaluation of the target population level objective based on biological criteria. The recommendations also called for the development of a full and reliable abundance assessment and reporting of all removals¹⁶⁸.

While Faroe Islands does not permit the hunting of grey seals, grey seals found preying on fish farms may be shot. Until recently, these takes of grey seals did not have to be reported or recorded and the killed animals did not need to be retrieved. Dating back to at least 2003, the Scientific Committee has strongly recommended that Faroe Islands take immediate steps to obtain better information on the population of Faroese grey seals and the nature and impact of the take of these animals¹⁶⁹. In 2005, Faroe Islands noted that there had been a drastic decline in salmon farming, which likely led to a reduction in the take of

¹⁶³ NAMMCO Annual Report 2011, p. 89.

¹⁶⁴ NAMMCO Annual Report 2011, p. 36.

¹⁶⁵ NAMMCO Annual Report 2016, p. 78.

¹⁶⁶ NAMMCO Annual Report 2006, p. 508.

¹⁶⁷ NAMMCO Annual Report 2015, p. 74.

¹⁶⁸ NAMMCO Annual Report 2015, p. 74.

¹⁶⁹ NAMMCO Annual Report 2003, p. 20.

grey seals¹⁷⁰. Faroe Islands also began to tag grey seals¹⁷¹, but the Scientific Committee still sought better information on the nature and impact of the take on the grey seal stock and on breeding sites¹⁷². The Scientific Committee also recommended that Faroe Islands define clear management objectives for grey seals and make the reporting of all take of grey seals mandatory and enforceable¹⁷³. It also urged the Faroe Islands to estimate removal and abundance off its coast and to provide proper estimates of population size and catch¹⁷⁴.

Fish farms were directed by the Faroe Islands Fisheries Ministry that from 2010 on they were to keep records on marine mammal takes and deliver records once a year¹⁷⁵. These reporting requirements were updated the following year¹⁷⁶. At its 2018 meeting the Scientific Committee welcomed the research undertaken by Faroe Islands and encouraged that this work be given the highest priority as 15 years had passed since the Scientific Committee had first expressed concerns about grey seals¹⁷⁷.

Harbour seals are hunted in Norway and Iceland, as well as in Canada. Hunting of Harbour seals was banned in Greenland in 2010 although some take is periodically reported. There are at least 14 distinct populations of harbour seals including populations in Greenland, Iceland, west coast of Norway, Svalbard, and Canada. In Norway the hunt has been regulated by quotas since 1997, and in 2011 those quotas began to be set based upon scientific advice. Norway has set as its objective for the management of harbour seals a population stabilized at a level at which 7,000 moulting seals can be recorded. The government seeks to balance a desire to preserve large seal populations with preventing damage to fisheries and aquaculture in the coastal zone. Iceland has set its management objective as maintaining the harbour seal stock at close to 2006 levels of 12,000 animals¹⁷⁸. Both Norway and Iceland are examining their management plans for harbour seals, including reevaluating target population objective so that it is based on biological criteria¹⁷⁹.

A 2016 census of harbour seals in Iceland estimated a population size of 7,652 animals. This reflects an estimated population size that is 77% smaller than the first estimate from 1980, and 36% smaller than the current target size of 12,000 animals. The current aim is to conduct a census every second year while the population is under the target level¹⁸⁰.

2.2.6.8 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.6.3

Answers from Survey respondents and interviewees to Q21 are included in Appendix 7.

With one exception, survey respondents believed that the management measures adopted by NAMMCO members for shared stocks were consistent or compatible. One respondent felt that there were no such stocks. The few additional comments that were received on this question were that Respondent was unaware of any shared stocks or that there were very few shared stocks. No interviewees commented on this element.

¹⁷⁰ NAMMCO Annual Report 2005.

¹⁷¹ NAMMCO Annual Report 2008, p. 94.

¹⁷² NAMMCO Annual Report 2008, p. 101.

¹⁷³ NAMMCO Annual Report 2009, p. 273.

¹⁷⁴ NAMMCO Annual Report 2010, p. 110.

¹⁷⁵ NAMMCO Annual Report 2011, p. 438.

¹⁷⁶ NAMMCO Annual Report 2012 p. 265.

¹⁷⁷ NAMMCO 2018. Report of the 24th Scientific Committee meeting, November 2017, Reykjavík, Iceland, p. 37.

¹⁷⁸ NAMMCO Annual Report 2010, p. 111.

¹⁷⁹ NAMMCO *In press*. Report of the 25th Scientific Committee meeting, November 2018, MS Polarlys, Norway.

¹⁸⁰ NAMMCO *In press*. Report of the 25th Scientific Committee meeting, November 2018, MS Polarlys, Norway, p. 34.

2.2.6.9 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.6.3

[PRP18-RC35] The Panel **recommends** that NAMMCO develop guidance for Members on how to come to an agreement on the management of shared stocks, including the allocation of allowable catch. So far, negotiating such an arrangement has not been necessary to ensure that marine mammal stocks that are harvested by more than one NAMMCO member are being managed appropriately. However, it is not unlikely that such an agreement will be necessary in the future. Having a framework for such discussions could facilitate resolution of any issues. It also allows NAMMCO Members to put in place rules that will ensure that the negotiations result in an allocation arrangement that has the sustainable management of marine mammals as a top priority.

2.2.6.10 INTRODUCTION TO DETAILED CRITERION 1.6.4 "EXTENT TO WHICH CONSISTENT/COMPATIBLE MANAGEMENT MEASURES HAVE BEEN ADOPTED FOR SHARED STOCKS BY NAMMCO PARTIES AND NON-NAMMCO PARTIES (E.G. CANADA AND RUSSIA)"

Nine stocks of marine mammals are hunted by both Greenland and Canada. They include:

- The Northwest Atlantic stock of the harp seal
- the Northwest Atlantic stock of hooded seals
- the Northeast Canada/Baffin Bay/West Greenland stock of ringed seals
- the Northwest/Baffin Bay walrus stock
- the West Greenland walrus stock
- The Eastern High Arctic/Baffin Bay stock of beluga whales
- The Eclipse Sound/Admiralty Inlet/Somerset Island stock of narwhal

Of these seven stocks, six have satisfactory assessments and current levels of removal that are considered sustainable by the Scientific Committee. The Northeast Canada/Baffin Bay/West Greenland stock of ringed seals has not been assessed since 1996 and has substantial removals. For Greenland, total removals have ranged between almost 90,000 animals in 1996 to 48,000 animals in 2016. For Canada, in the 80s and early 90s, catch levels were in the order of 50-60,000 seals per year¹⁸¹, currently they are assumed to be in the range of high 10,000s. Neither Greenland nor Canada have established quotas for this stock. However, the even distribution of ringed seals throughout the arctic, including in places not accessible to hunters, is thought to make them robust to overexploitation¹⁸².

Norway and Russia share the Svalbard and Franz Josef Land walrus stock. The status of the stock is unknown, and hunting is prohibited by Norway. Russia also prohibits hunting of this stock with an exception for a limited subsistence harvest by aboriginal people.

Greenland, Norway and Russia share the Greenland Sea hooded seal stock. There is no commercial hunting of this stock although Greenland has a very small subsistence take¹⁸³. The only other reported removals are a small number of animals by Norway for research purposes¹⁸⁴. The estimated size of this stock is less than 30% of historic level and it is, therefore, considered of maximum conservation concern.

Greenland, Norway, Canada, and Russia hunt bearded seals in the Arctic. Scientists currently lack the data necessary to delineate separate bearded seal stocks so they are managed as

¹⁸¹ Reeves, Wenzel and Kingsley 1998.

¹⁸² GINR (Greenland Institute of Natural Resources). 2016. <http://www.natur.gl/en/birds-and-mammals/marine-mammals/ringed-seal/> Accessed 7 Feb 2019.

¹⁸³ http://portugal.um.dk/en/about-denmark/greenland-and-the-faroe-islands/greenland/~media/Portugal/Documents/White%20paper%20on%20seals%20in%20Greenland_May2012_eng.pdf

¹⁸⁴ NAMMCO Annual Report 2006, p. 168. NAMMCO Annual Report 2016, p. 266.

one. There is subsistence harvest of bearded seals throughout their range, though at low levels relative to other species of seals. Harvest rates for bearded seals in all countries are considered small relative to the local populations and harvesting is felt to have little impact on abundance¹⁸⁵. It is also generally thought that the distribution of these seals at relatively low densities over such a large area helps to protect them from overexploitation¹⁸⁶. Russia also has a commercial harvest that is controlled by a TAC. None of the other harvesters have quotas and Russia does not have a quota for its subsistence hunt.

2.2.6.11 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.6.4

Answers from Survey respondents and interviewees to Q22 are included in Appendix 7.

Respondents to the survey generally felt that there was consistent or compatible management of shared stocks with most respondents selecting "satisfactory" or "good". One respondent selected excellent while a little more than 10% of the respondents felt that performance based on this criterion was unsatisfactory. In their comments, several respondents wrote positively about the work of the JCNB. Another respondent also noted compatibility with Canada and Nunavut on beluga, narwhal and walrus. One observed that compatibility was good with Russia, while another noted the collaboration with Russian and Canada on the management of harp and hooded seals. Finally, one respondent noted that while there was not always consistent or compatible management, Canada and Russia have always been informed about NAMMCO studies and advice.

In the interviews, one interviewee expressed their belief that the delay in implementation of NAMMCO recommendations for the management of beluga and narwhal was, in part, due to challenges created by the fact that these stocks were shared with a non-member.

2.2.6.12 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.6.4

[PRP18-RC36] The Panel **finds** that for most stocks of marine mammals that are hunted by both a NAMMCO Member and NAMMCO non-Member, current levels of removal are sustainable which suggests that the relevant management measures are consistent or compatible. However, the Panel **is concerned** that the Northeast Canada/Baffin Bay/West Greenland stock of ringed seals has not been assessed since 1996 and has significant removals. The Panel **notes** that there is no agreed venue, such as the JCNB for Greenland and Canada to collaborate on managing this stock. The Panel **also notes** that the Scientific Committee is tentatively planning to convene a ringed seal working group in 2020 or 2021. The Panel **urges** the Scientific Committee to hold the ringed seal working group as soon as possible but, in any case, no later than 2021 so that work on an assessment of this stock may be completed as quickly as possible. The Panel **also urges** NAMMCO to identify an appropriate forum for Greenland and Canada to engage in the management of this stock.

[PRP18-RC37] The Panel **also notes** the work that has been accomplished by the JCNB and **encourages** Greenland and Canada to strengthen that cooperation and the swift adoption and implementation of management measures developed through that process.

¹⁸⁵ Cameron, M. F., Bengtson, J.L., Boveng, P.L., Jansen, J.K., Kelly, B.P., Dahle, S.P., Logerwell, E.A. Overland, J.E., Sabine, C.L., Waring, G.T. and Wilder, J.M. 2010. Status review of the bearded seal (*Erignathus barbatus*). U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-211, 246 p.

¹⁸⁶ GINR (Greenland Institute of Natural Resources). 2016. <http://www.natur.gl/en/birds-and-mammals/marine-mammals/bearded-seal/>

2.2.6.13 INTRODUCTION TO DETAILED CRITERION 1.6.5 "EXTENT TO WHICH NAMMCO PARTIES HAVE MOVED TOWARDS THE ADOPTION OF CONSERVATION AND MANAGEMENT MEASURES FOR PREVIOUSLY UNREGULATED TAKES, INCLUDING NEW AND EXPLORATORY HUNTING ACTIVITIES AND BYCATCH"

Article 2 of the NAMMCO Agreement provides that "[t]he objective of the Commission shall be to contribute through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic". Under such broad language, NAMMCO could have authority to consider the status of all marine mammals in the north Atlantic. In fact, NAMMCO's scope has been more limited focusing only on those marine mammals that spend time in the waters of one or more of the NAMMCO members. Initially, NAMMCO's resources focused were focused even more: on the status of marine mammals that are most widely hunted. However, over the years, that attention has broadened to include animals that are harvested, but at a lesser scale, as well as animals that impact the marine interests of the NAMMCO members in other ways including because of interaction with fisheries and fishing gear.

2.2.6.13.1 Grey Seals

In 2001, The Scientific Committee noted an apparent decline, over a 10-year period, in the number of grey seals in Icelandic waters. As it was concerned that this decline might be due to unsustainable hunting rates, it proposed a new assessment of the species¹⁸⁷. In 2003, the Scientific Committee looked at grey seal populations in Iceland, the Faroe Islands, Norway, the Baltic, the United Kingdom, Canada and the United States. Some of what the Scientific Committee found with respect to grey seal populations found in the waters of NAMMCO members concerned it. For example, the Committee found that while the grey seal population in Iceland appeared stable between 1982 and 1990, between 1990 and 2002 the pup production had declined at an annual rate of about 6%. The Scientific Committee also found that the range of the grey seal in Iceland had contracted and grey seals were no longer found off of the northeast coast where some breeding had occurred 10 years earlier. The Committee also noted that harvests had been above sustainable levels for more than 10 years and concluded that if harvests continued at those levels it was likely that the population would be reduced to very low levels and likely extirpated in some areas, within 10 years. The Committee recommended that Iceland establish clear management objectives with respect to this stock¹⁸⁸.

The Scientific Committee also examined the Faroe Islands where grey seals were only taken in connection with trying to prevent predation at fish farms. While catch statistics were not available, the Committee estimated that takes in 2001 were on the order of 250 to 500 seals which the Scientific Committee thought was high for the imagined size of the population. The Committee strongly recommended immediate efforts to obtain information on the size of the grey seal population in the Faroe Islands and on the nature and impact of the take of that population¹⁸⁹.

Concerning Norway, the Scientific Committee estimated that approximately 1,030 grey seal pups were born in Norwegian waters annually. The Committee determined that this suggest that there were 4,400-5,500 seals of age 1 or more years. From 1997-2002, catch of grey seals in Norwegian waters ranged from 34-176 animals or 13-49% of the scientifically-based quota (5% of the estimated population), and 11-35% of the established quota. In 2003,

¹⁸⁷ NAMMCO Annual Report 2001, p. 18.

¹⁸⁸ NAMMCO Annual Report 2003, p. 19-20.

¹⁸⁹ NAMMCO Annual Report 2003, p. 20.

Norway modified its management of the grey seal stock and increased quotas to 25% of the estimated population. It also offered a NOK 500 for each grey seal killed. The Scientific Committee noted that if the quota was filled the population would certainly decline. The Committee recommended that clear management objectives be developed for this stock¹⁹⁰.

In 2004, the Scientific Committee reiterated its recommendations to the Faroe Islands with respect to grey seals. It also welcomed Iceland's continuation of its grey whale survey programme and reiterated its recommendation that Iceland immediately establish management objectives and conservation reference limits for grey seals as an urgent priority. Finally, with respect to Norway, the Scientific Committee called for an immediate and formal analysis of the effect of the quota levels that had been established, including the risk of extinction of the stock and the sensitivity of the survey programme to detect a population decline¹⁹¹.

Iceland commented that it had already established management objectives for grey seals: maintain the stock at current levels and take protective measures if there was evidence of decline in the stock. Iceland also noted that careful monitoring would be needed to achieve these objectives¹⁹². Norway stated that it was in the process of developing a management plan for grey seals and that recent catches had been lower than the quotas in most areas. The Faroe Islands noted that a drastic decline in salmon aquaculture had likely led to a decline in the killing of grey seals¹⁹³.

In 2005, the Faroe Island announced that in the spring of 2007 it would initiate a satellite tracking programme for grey seals in order to further study their feeding ecology and abundance¹⁹⁴. Over the next several years, incremental progress was made by Norway and Iceland in addressing the various concerns raised by the Scientific Committee regarding the need to improve data and better define management objectives.

In 2005, the Icelandic government adopted a management plan for the grey seal stock which called for action to be taken if the grey seal population fell below the estimated level in 2004 of 4,100 animals¹⁹⁵. Iceland's Marine Research Institute (MRI) stressed the importance of regular monitoring of the stock.

In 2009, Greenland confirmed the sighting of a grey seal in south Greenland. This was the first sighting of a grey seal in Greenland in many years. The Scientific Committee recommended that Greenland gather further information on the presence of grey seals and that it protects all grey seals against hunting¹⁹⁶. Greenland banned the hunting of grey seals the next year¹⁹⁷. Information concerning the Icelandic hunt revealed that while there had been a decline in seal pup production between the 2008 estimate and the results of a survey in 2009, direct takes had also declined. This suggested to the Scientific Committee that bycatch was likely the main removal method for grey seals in Icelandic waters. Noting that there were no reliable estimates of bycatch available, the Scientific Committee strongly recommended that all removals, including directed catch and bycatch from all areas, be

¹⁹⁰ NAMMCO Annual Report 2003, p. 20.

¹⁹¹ NAMMCO Annual Report 2004, p. 22.

¹⁹² NAMMCO Annual Report 2004, p. 22.

¹⁹³ NAMMCO Annual Report 2004, p. 22.

¹⁹⁴ NAMMCO Annual Report 2006, p. 164.

¹⁹⁵ NAMMCO Annual Report 2006, p. 508.

¹⁹⁶ NAMMCO Annual Report 2006, p. 241.

¹⁹⁷ NAMMCO Annual Report 2011, p. 17.

reported¹⁹⁸. Norway reported an increase in the number of grey seals in Norwegian waters¹⁹⁹.

Norway implemented a new Management Plan for grey and harbour seals in 2011 which included the objective of stabilizing the grey seal population at a target level equal to 1,200 pups born annually and to ensure that viable populations of harbour and grey seals remain within their natural distribution areas. Hunting quotas were to be used to stabilize these populations. The Plan sought to ensure that the greatest impact of the hunting was in areas where there was documented significant impact on fishing activities by grey seals. While the objective of the management plan was not set on a biological basis, the quotas are based on scientific advice in accordance with the management plan²⁰⁰.

In 2015, Iceland's MRI again stressed the importance of data and stated that due to the lack of new abundance estimates for grey seals and harbour seals it would be unable to evaluate whether the management targets for these species were being met²⁰¹. That year the NAMMCO Scientific Committee made several recommendations to Iceland concerning the management of grey seals. These recommendations called for, among other things, the development of a management plan that included specifications on the frequency of surveys and an evaluation of the target population level objective based on biological criteria. The recommendations also called for the development of a full and reliable abundance assessment and reporting of all removals²⁰². In 2016, the Scientific Committee concluded that the relevant hunts were managed well under this Plan but made recommendations about how to update it²⁰³.

2.2.6.13.2 Bearded Seal

At its 2009 meeting, the Management Committee for Seals and Walruses noted the recommendation from the Scientific Committee that the status of the bearded seal be assessed as there is no information on abundance and stock status even though the species is being exploited in both Greenland and Svalbard²⁰⁴. Noting that the information on this species is still limited, the Scientific Committee has proposed convening a status meeting at which a working group could examine a variety of issues including whether there are populations or areas in the North Atlantic for which there is sufficient data to assess the effects of exploitation and reduction in habitat²⁰⁵.

2.2.6.13.3 Harbour Porpoises

In 2007, the Management Committee recommended that member countries conduct surveys to produce reliable estimates of abundance for harbour porpoises in their areas. In addition, the Management Committee recommended that member countries provide reliable estimates of total removals, including bycatch, for this species. Once this information is available for any area, the sustainability of removals can be assessed by the Scientific Committee²⁰⁶.

¹⁹⁸ NAMMCO Annual Report 2010, p. 241.

¹⁹⁹ NAMMCO Annual Report 2010, p. 461.

²⁰⁰ NAMMCO Annual Report 2010, p. 36.

²⁰¹ NAMMCO Annual Report 2015, p. 74.

²⁰² NAMMCO Annual Report 2015, p. 74.

²⁰³ NAMMCO Annual Report 2016, p. 78.

²⁰⁴ NAMMCO Annual Report 2009, p. 115.

²⁰⁵ NAMMCO Annual Report 2016, p. 81.

²⁰⁶ NAMMCO Annual Report 2006, p. 19.

At the 2011 Annual Meeting, the Scientific Committee advised that it had received, reviewed and endorsed 2007 abundance estimates for all areas, except Norway, as well as an additional aerial estimate for the Faroe Islands from 2010. The Scientific Committee also recommended that an assessment meeting be held in 2012²⁰⁷. Problems with data led the meeting of the Working Group on Harbour Porpoises to be delayed until November of 2013. The terms of reference for the meeting were to provide a full assessment for West Greenland and to initiate the process for Norway. However, upon reviewing the data provided by Greenland and noting a large degree of uncertainty concerning the abundance estimate and the catch history, and the impact of this uncertainty on the results of the assessment models, the Working Group determined that it could not provide management advice to Greenland without further data. Based upon the report of the Working Group, the Scientific Committee recommended that a new assessment not be conducted until both Greenland and Norway had an opportunity to collect and provide the required data²⁰⁸.

In order to allow for the collection and analysis of required data, the NAMMCO Council has agreed that the next meeting of the Harbour Porpoise Working Group should be held in 2019. The purpose of the meeting will be to provide assessments of harbour porpoise stocks in the waters of NAMMCO members and related management advice²⁰⁹.

2.2.6.13.4 Killer Whale

A joint working group to assess the status of the killer whale was first recommended at the first meeting of the Scientific Committee²¹⁰. At its fifth meeting²¹¹ and again, at its 12th meeting, the Scientific Committee concluded that it did not have enough information to carry out a full assessment²¹². The Scientific Committee agreed that it would annually review progress on the collection of relevant data with the idea that it would conduct an assessment when the needed data becomes available²¹³. Over the ensuing years, the Scientific Committee has continued to make recommendations concerning necessary data (including reliable catch statistics and other data to support preparation of an abundance estimate²¹⁴) but has not yet received the information needed to conduct an assessment of the various killer whale populations.

The discussion in sections 2.2.3.7-2.2.3.9, concerning Detailed Criterion 1.3.3 "*Extent To Which NAMMCO Parties Collect Complete and Accurate Data on Hunting Activities (Catch Statistics, Hunting Effort, Struck And Lost)*", is relevant here.

2.2.6.14 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.6.5

Answers from Survey respondents and interviewees to Q23 are included in Appendix 7.

The majority of responses to this question on the survey were evenly split between good and satisfactory, although a couple of people responded excellent and a couple responded unsatisfactory. In their comments, some respondents referenced Greenland's adoption of conservation and management measures for beluga, narwhal and walrus. One commenter noted an improvement for bycatch species although they were unsure about how things were progressing with unregulated takes. Another thought that while there was clearly a movement towards developing conservation and management measures for these species,

²⁰⁷ NAMMCO Annual Report 2011, p. 75.

²⁰⁸ NAMMCO Annual Report 2013, p. 223 (2013) (Report of the NAMMCO Scientific Working Group on Harbour Porpoises).

²⁰⁹ NAMMCO Council Meeting Report 2017, p. 9.

²¹⁰ NAMMCO Annual Report 1993, p. 36 (Report of the Scientific Committee).

²¹¹ NAMMCO Annual Report 1996, p. 103.

²¹² NAMMCO Annual Report 2004, pp. 215-216.

²¹³ NAMMCO Annual Report 2004, pp. 215-216.

²¹⁴ NAMMCO Annual Report 2016, p. 69.

the absence of assessments for some exploited stocks and satisfactory estimates of bycatch was holding progress back.

In the interviews, NAMMCO's work on narwhal and beluga whales was cited as among the organization's major achievements.

2.2.6.15 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.6.5

The Panel **notes** that the expansion of the scope of NAMMCO's work has created new opportunities for its members to cooperate on marine mammal for which they are developing conservation and management measures.

[PRP18-RC38] The Panel **finds** that NAMMCO Parties have, over the life of the Commission, moved towards the adoption of conservation and management measures for previously unregulated takes. However, for some species or stocks the process has been slow (e.g. beluga, narwhal and walrus), hampered by a lack of data (e.g. harbour porpoises, northern bottlenose, white-sided and white-beaked dolphins), and in some cases (e.g. East Greenland and West Greenland killer whales, Greenland and Svalbard bearded seals) has not resulted in the development of NAMMCO recommendations for conservation and management or the implementation of those recommendations after a decade or more of attention. The Panel **recommends** that as part of its efforts to develop a Strategic Plan, the Council consider how to make the process of developing conservation and management measures for stocks that have not been previously managed more efficient. This should include prioritizing stocks based on factors including the biological status of the stock ("unknown," "of concern," etc.) It may also include expanding NAMMCO's efforts to collect the data that is necessary to make determinations about which stocks are priorities and to conduct assessments of those stocks that are deemed priorities. In addition, Council, as part of its development of a Strategic Plan, may wish to consider expanding the level of support that the Secretariat can provide to the scientific enterprise, in the context of the more general recommendation that the Commission consider strengthening the capacity of the Secretariat to support its work (sections 2.1.3, PRP18-RC3.2; and 2.7.1.3, PRP18-RC69). See also section 2.7.2.1, detailed criterion 6.2.1 *"Extent to which NAMMCO is efficiently managing human and financial resources including those of its Secretariat"* (PRP18-RC80-86).

2.2.6.16 INTRODUCTION TO DETAILED CRITERION 1.6.6 "EXTENT TO WHICH NAMMCO PARTIES HAVE TAKEN DUE ACCOUNT OF THE NEED TO CONSERVE MARINE BIOLOGICAL DIVERSITY AND MINIMIZE HARMFUL IMPACTS OF HUNTING ACTIVITIES AND RESEARCH ON MARINE MAMMAL STOCKS AND MARINE ECOSYSTEMS"

The background for analysing NAMMCO's performance with respect to this criterion is discussed in other parts of the report including above under criteria 1.2.1-1.2.3 (section 2.2.2.1) and below under criteria 2.1.1-2.1.2 (section 2.3.1.1) and 2.3.1-2.3.2 (section 2.3.3.1).

2.2.6.17 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.6.6

Answers from Survey respondents and interviewees to Q24 are included in Appendix 7.

Respondents to the survey generally felt that the NAMMCO Parties are doing a good or satisfactory job in taking account of the need to conserve marine biodiversity and to minimize the harmful impacts and research on marine mammal stocks and ecosystems. One respondent indicated that the NAMMCO Parties were doing an excellent job, and one thought that their response was unsatisfactory. In written comments, a few respondents stated that they were confused by the question. One respondent noted that the work of NAMMCO is focused on science-based management and another expressed the belief that

the members of NAMMCO work actively to ensure that hunting is sustainable and that research is not harmful. A third respondent stated they weren't sure that work is being done on the harmful impacts of research while another respondent believed that the answer depended on the species and that NAMMCO's performance on this criterion was unsatisfactory for data poor species.

2.2.6.18 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.6.6

[PRP18-RC39] The Panel **finds** that NAMMCO has done a significant amount of work on minimizing harmful hunting activities particularly concerning reducing the number of animals that are Struck & Lost and reducing the time to death of hunted animals. The Panel **recommends** that NAMMCO, through the CHM and other bodies, to continue this work and to try to identify other harmful hunting activities that can be mitigated.

[PRP18-RC40] The Panel **has not found** any significant evidence that NAMMCO has specifically focused on the need to minimize harmful impacts on marine biological diversity. However, the Panel **notes** that NAMMCO has sought to implement an ecosystem approach to marine mammal management. See discussion in section 2.2.2 above. The Panel **also has not found** that NAMMCO has made any explicit efforts to take account of the harmful impacts of research on marine mammal stocks and ecosystems.

2.2.6.19 INTRODUCTION TO DETAILED CRITERION 1.6.7 "EXTENT TO WHICH NAMMCO HAS PROPOSED AND PARTIES HAVE ADOPTED AND ARE IMPLEMENTING EFFECTIVE REBUILDING PLANS FOR DEPLETED OR OVERHUNTED STOCKS"

As discussed in greater detail above with respect to criteria 1.1.1 and 1.1.2 (section 2.2.1), based on the best available scientific advice suggests that, a number of stocks within NAMMCO's remit have experienced, and some still experience, unsustainable levels of removal as a result of hunting activities. Other factors that impact on the health of particular stocks of marine mammals found in the north Atlantic are discussed in relationship to our consideration of criteria 1.2.1, 1.2.2 and 1.2.3 above. While "rebuilding plans" is not a term that is commonly used in NAMMCO, as is described elsewhere in this report, the Council, Management Committees, Scientific Committee, and other bodies have, as resources have allowed, gathered data and assessed stock status and provided recommendations to NAMMCO members on how to sustainably manage particular stocks. The successful development of advice requires the articulation of objectives and the collection of necessary data. The success of NAMMCO's efforts also depend on the willingness of NAMMCO members to allocate the resources necessary to collect and analyze the necessary data. Ultimately, they also depend on the ability and willingness of NAMMCO members to implement the recommendations.

2.2.6.20 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 1.6.7

Answers from Survey respondents and interviewees to Q25 are included in Appendix 7.

In response to this criterion, a quarter of all respondents stated that NAMMCO's performance was "unsatisfactory" or "none". The other responses were almost evenly split between "satisfactory" and "good", although one respondent said "excellent". In their written comments, one respondent noted that there were good plans for a number of species including walrus and narwhal, and beluga, fin, minke and humpback whales, and that even bowheads are increasing in number. This respondent also noted that this progress was "not automatically because of NAMMCO." Another respondent, who indicated that they thought that NAMMCO's performance on this criterion was satisfactory, listed "beluga, narwhal with JCNB". In addition, a respondent noted that most monodontids, mysticetes

and pinniped stocks were recovering, although narwhal in Melville Bay are uncertain and in East Greenland are declining. Yet another respondent commented that efforts have generally been prompt, with the exception of Iceland's coastal seals.

"Narwhals (2018), bycatch, fishfarms" were areas for which one respondent deemed NAMMCO's performance on this criterion as being inadequate. Another respondent noted that they did not recall any rebuilding plans for Greenland. Another person expressed that view that NAMMCO has put forth very few proposals for conservation and management, although this person also noted that Science Committee advice is usually followed. Another commenter found a distinction between visible hunts, such as the one for belugas in Greenland, where the adoption and implementation of plans is good, as opposed to stocks such as the grey seals in the Faroe Islands, where the adoption and implementation of rebuilding plans has not been good.

2.2.6.21 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 1.6.7

[PRP18-RC41] The Panel **was unable to find** any evidence that NAMMCO has adopted a rebuilding plan for any of the stocks that the Scientific Committee has found to be depleted. Nevertheless, the Panel **notes** that with respect to several stock including walrus, narwhal and west Greenland beluga, the adoption and enforcement of quotas by member nations has resulted in improvements to the status of the stock.

2.3 Hunting Activities

2.3.1 Status of safety and animal welfare issues

AREA 2 - HUNTING ACTIVITIES	
<i>General criteria</i>	<i>Detailed criteria</i>
2.1 Status of safety and animal welfare issues	2.1.1. Status of safety, efficiency and animal welfare issues in all hunting activities under the purview of NAMMCO.
	2.1.2. Trends in the status of these issues in the review period.

2.3.1.1 INTRODUCTION TO DETAILED CRITERIA 2.1.1 "STATUS OF SAFETY, EFFICIENCY AND ANIMAL WELFARE ISSUES IN ALL HUNTING ACTIVITIES UNDER THE PURVIEW OF NAMMCO" AND 2.1.2 "TRENDS IN THE STATUS OF THESE ISSUES IN THE REVIEW PERIOD."

NAMMCO's website provides the following general description of the Committee on hunting methods, its operation and major outcomes²¹⁵:

"The Committee provides advice on hunting methods for marine mammals. The advice is based on the best available scientific findings, technological developments and traditional and local knowledge, with due consideration given to safety requirements, animal welfare and efficiency of utilization".

"The Committee has organized much of its work through the convening of international Workshops and Expert Group meetings. These meetings have over the years successfully developed into arenas where hunters, managers and scientists can meet and openly discuss issues of common concern. The meetings have all generated recommendations related to their terms of reference".

"The Committee has developed hunting manuals on how to maintain and use the weapons and equipment deployed in hunting. These manuals have been widely dispersed to hunters in the member countries, and are also part of the mandatory courses held for hunters.

²¹⁵ Committee on Hunting Methods <https://nammco.no/topics/committee-on-hunting-methods-2/>

Furthermore it has developed a guideline to test efficiency of rifle ammunition and has carried out shooting trials to examine the effect of different rifle projectiles'.

Details related to these narratives, responses of the Council and NAMMCO members to the recommendations of the Workshops, Expert Group meetings and Hunting methods committee^{216,217} and a review of the "List of laws and Regulations in NAMMCO member countries"²¹⁸ (see also 2.4.1 and 2.4.3) have formed the basis of the Panel's assessment and evaluation of NAMMCO's performance related to Criteria 2.1. Budget allocations to the committee were also reviewed.

2.3.1.1.1 International workshops and Expert Group meetings

Between 1999 and 2015, the Committee on hunting methods held eight international workshops and Expert Group meetings related to: hunting methods in NAMMCO member countries, hunting methods for seals and walrus, weapons, ammunition and ballistics, struck and lost, hunting methods for small cetaceans, and time to death in large whale hunts. Reports from these meeting include recommendations. These workshops included full participations of hunters as well as veterinarians, animal science specialists, wildlife managers and a wide variety of other experts from NAMMCO and non-NAMMCO countries²¹⁹.

In addition to the recommendations from NAMMCO's Expert Group meetings and workshops, major outputs from the Hunting methods committee have included the production of three manuals: A manual on maintenance and use of weaponry and equipment deployed in hunting of baleen whales in NAMMCO member countries published in English, Greenlandic and Norwegian, a manual on pilot whaling published in English and Faroese and, a manual on small whale hunting in Greenland published in English and Greenlandic²²⁰. These manuals have been widely dispersed to hunters in the member countries and are also part of the mandatory courses held for hunters. The Committee on hunting methods has also developed a guideline to test efficiency of rifle ammunition and has carried out shooting trials to examine the effect of different rifle projectiles²²¹.

2.3.1.1.2 Responses to the recommendations and requests of the Committee on Hunting Methods to Council

The below referenced document produced for the Panel by the Secretariat lists requests and recommendations from the Committee on hunting methods to the Council. These recommendations and requests made from 1994 when the Council established a permanent Working Group under the Council on hunting methods to 2017 relate mostly to aspects of the Committee's workplan. All of these recommendations and requests were "agreed to", "approved" or "endorsed" by the Council except for the 2016 recommendation to establish a new committee to consider non-hunting animal welfare issues including those related to bycatch, entanglement and strandings. In this case, the Council decided not to follow the recommendation of the Hunting methods committee but rather they accepted the recommendation of the Finance and Administration Committee to establish a working

²¹⁶ PRP2018_12

²¹⁷ PRP2018_16

²¹⁸ PRP2018_16

²¹⁹ <https://nammco.no/topics/expert-group-meetings/>

²²⁰ <https://nammco.no/topics/manuals-for-use-and-maintenance-of-weapons-and-gears-in-whaling/>

²²¹ <https://nammco.no/topics/committee-on-hunting-methods-2/>

group directly under the Council to deal with animal welfare issues solely related to bycatch, entanglement and live strandings²²².

The overview of hunting method-related recommendations to NAMMCO members and responses by member countries prepared by the Secretariat for the Panel²²³ lists the recommendations emanating from the workshops and Expert Group Meetings and the responses by member countries. The recommendations cover a broad range of subjects and follow a detailed review by experts of all marine mammal hunts that occur in NAMMCO member countries.

Recommendations were specifically related to:

- implementation of a new blunt hook for the Faroe Island hunt of long-finned pilot whales;
- calibre of rifle ammunition for the killing of stranded bottlenose whales in the Faroe Islands;
- study of ammunition types for hunting of small cetaceans in Greenland;
- development of a new hand held harpoon to improve the efficiency of beluga, narwhal, walrus and seal hunting;
- Development of and use of a new harpoon and penthrith grenade for all hunts for baleen whales;
- continued work on the development and improvement of hunting regulations;
- the use of hunter knowledge and experience when and where possible;
- rifles/ammunition used as a secondary weapon in minke whale hunts;
- consideration of hunter safety as well as animal welfare in official hunting regulations;
- studies should be done and methods, techniques and equipment to reduce struck and lost be developed, applied and included in hunter training courses;
- make every effort to reduce suffering by hunted animals;
- conduct studies on terminal ballistics of various calibre and bullet types in seal and walrus hunting;
- urge fullest possible utilization;
- safety of hunters should be a priority in all hunts;
- efforts to reduce suffering of hunted animals by minimizing killing times;
- hunting equipment should be properly maintained;
- hunters should be involved in development of management measures and regulations;
- descriptions of suitable equipment for each situation should be developed;
- Alternatives for monitoring hunts when it is not possible to have independent observers;
- techniques and equipment used for large whale hunting;
- strengthening international cooperation to facilitate access to information and technology and purchase and transport including weapons and explosives;
- monitoring struck and lost
- hunter training should be species and area specific;
- specific recommendations related to walrus hunting;
- best practices for hunting and killing of seals;
- monitoring and reporting of TTD data for baleen whales hunted in all of the member countries;

²²² PRP2018_12

²²³ PRP2018_12.

- hunter training, struck and lost, and TTD for small whale hunts.
- Alternative catching methods to netting for beluga and narwhal should be developed.

See also section 2.3.4.1 for more information.

The issue of hunter safety is also addressed in the 3 manuals produced by the Hunting methods committee and is a part of the required hunter training courses in all NAMMCO member countries. These manuals - Manual on hunting of small cetaceans in Greenland, Instruction manual on pilot whaling and, Manual for maintenance and use of weaponry and equipment deployed in hunting of baleen whales in NAMMCO member countries - all refer to the need to minimize animal suffering associated with the hunting and killing methods and take into account hunter's safety.

Budget allocations to the Committee on hunting methods began in 2004 and have, since then, varied from a high of 374,951 NOK in 2006 to 0 NOK for the years 2005, 2007, 2008, 2014 and 2017. In 3 years (2004, 2013 and 2015), allocations to the Committee on hunting methods exceeded the amount allocated to the Scientific Committee.

Issues of safety, efficiency and animal welfare aspects of activities undertaken by hunters (detailed criteria 2.1.2) from NAMMCO member countries are regular topics since 2001 subject to examination and review by Expert Group meetings and workshops convened by the Committee on Hunting Methods. The following are elements of the trends that have increased hunter safety, increased efficiency of hunting weapons and increased attention to animal welfare issues²²⁴:

- moving from pointed hook to blunt hook in Faroe Islands hunting of long-finned pilot whale, and development and improvement of the spinal lance.
- move from pointed hook to rifles with adequate ammunition for killing stranded northern bottlenose whales,
- Greenland hunters developed a new handheld harpoon to improve efficiency of beluga, narwhal, walrus and seal hunting.
- increase use of harpoon grenades in all hunts for baleen whales in Greenland,
- improvement of penthrate grenade to decrease in TTD, increase of instantaneous death rate, and decrease in struck and lost rates,
- Upgrading, maintenance and standardization of the harpoon canons and other whale hunting equipment in Greenland for the killing of fin and minke whales,
- Introduction of training courses for hunters,
- Increased attention to the struck and lost issue and development of new monitoring programs to produce accurate estimates of struck and lost which is important for effective management and essential to improve hunting practices (see section 2.3.4.4 below).
- inclusion of animal welfare issues in hunting regulations in all NAMMCO member countries (see section 2.3.3.1 below).

2.3.1.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERIA 2.1.1 AND 2.1.2

Answers from Survey respondents and interviewees to Q26-Q27 are included in Appendix 7.

²²⁴ PRP2018_12.

Of 23 respondents, 19 said “yes”, 4 said “some” to Q26 (Has NAMMCO improved the status of safety, efficiency and animal welfare issues in all hunting activities under the purview?).

Responses to Q30 (see criterion 2.3.1), Q32 (see criterion 2.4.1) and Q35 (see criterion 2.4.4) are also relevant to “status” that is the subject of this section.

Many of those interviewed by the Panel, including Government representatives, past and present Secretariat staff, scientists and representatives of hunters’ organizations made positive comments concerning the work and outputs from the Committee on Hunting methods. No negative comments were received from those interviewed.

23 out of 24 respondents answered “yes”, 1 respondent answered “some” to Q27 (In your opinion, are trends in improving hunting safety, hunting efficiency and animal welfare issues positive since 1992?).

2.3.1.3 PANEL’S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERIA 2.1.1 AND 2.1.2

[PRP18-RC42] The Panel **is of the view** that NAMMCO has given a high priority and expended considerable human and financial resources to its work on the safety, efficiency and animal welfare issues in all hunting activities under its purview and that outputs from Committee on Hunting Methods, including those from the workshops and Expert Group Meetings, have been substantial. The Panel **is of the view** that the work of the Committee on Hunting Methods together with the approval of its recommendations by the Council and implementation of these recommendations by member countries is one of the key elements that have made NAMMCO a credible organization. The Panel **recommends** that the work of the Committee on Hunting Methods should continue as new information related to weaponry and hunting methods becomes available and, as the Council deems appropriate in relation to other NAMMCO priorities.

[PRP18-RC43] Regarding criteria 2.1.2, the Panel **is of the view** that almost since its inception NAMMCO has continued to give high priority to its work on safety, efficiency and animal welfare issues in all hunting activities under its purview and that this has resulted in positive trends that have improved the status of these issues over time.

2.3.2 Data collection and sharing

Even though the General criterion 2.2 on data collection and sharing is focused on hunting activities, the background information and procedure on data sharing and submission are essentially the same of general criterion 1.3. Therefore, the Panel has considered and discussed detailed criteria 2.2.1 (*Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions. (e.g. National Reports, TTD data and struck and lost data)*) and 2.2.2 (*Extent to which NAMMCO Parties collect representative and accurate data on hunting activities (catch statistics), hunting effort, struck & lost, TTD*) under criteria 1.3.1 and 1.3.3, respectively. See sections 2.2.3.1-2.2.33 and 2.3.3.7-2.3.3.9 for full details also on these aspects.

AREA 2 - HUNTING ACTIVITIES	
General criteria	Detailed criteria
2.2 Data collection and sharing	<p>2.2.1. Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions. (e.g. National Reports, TTD data and struck and lost data).</p> <p>2.2.2. Extent to which NAMMCO Parties collect representative and accurate data on hunting activities (catch statistics), hunting effort, struck & lost, TTD.</p>

2.3.3 Quality and provision of advice on Hunting Methods

Under General criterion 2.3 (Quality and provision of advice on Hunting Methods) the Panel considered the extent to which NAMMCO produces the best advice on Hunting Methods relevant to the methods under its purview, with respect to safety, efficiency, animal welfare and struck and lost reduction (detailed criterion 2.3.1) and cooperates internationally (detailed criterion 2.3.2). This General criterion is connected to general criteria 1.6 (*Adoption of Conservation and management measures*), 1.3 and 2.2 (*Data collection and sharing*), and 5.3 (*Cooperation with other international organizations*).

AREA 2 - HUNTING ACTIVITIES	
General criteria	Detailed criteria
2.3 Quality and provision of advice on Hunting Methods	2.3.1. Extent to which NAMMCO produces the best advice on Hunting Methods relevant to the methods under its purview, with respect to safety, efficiency, animal welfare and struck and lost reduction. 2.3.2. Extent to which NAMMCO cooperates internationally on these issues.

2.3.3.1 INTRODUCTION TO DETAILED CRITERIA 2.3.1 "EXTENT TO WHICH NAMMCO PRODUCES THE BEST ADVICE ON HUNTING METHODS RELEVANT TO THE METHODS UNDER ITS PURVIEW, WITH RESPECT TO SAFETY, EFFICIENCY, ANIMAL WELFARE AND STRUCK AND LOST REDUCTION" AND 2.3.2 "EXTENT TO WHICH NAMMCO COOPERATES INTERNATIONALLY ON THESE ISSUES"

According to its Terms of Reference, the Committee on Hunting Methods, '*shall, upon request from the Council or individual member countries, provide advice on hunting methods for those species of marine mammals relevant to NAMMCO member countries*'. It should also '*ensure that such advice is based on the best available scientific findings, technological developments and traditional knowledge, with due consideration given to safety requirements, animal welfare, efficiency in hunting gears and efficiency of utilization*'.

Advice from the Committee on hunting methods is based on the best available scientific findings, technological developments and traditional and local knowledge, with due consideration given to safety requirements, animal welfare and efficiency of utilization²²⁵. The advice is derived mainly from its Expert Group meetings and workshops that have included participation of international and domestic experts as well as hunters. Expert working groups workshops convened by the Committee on hunting methods include the following²²⁶:

ASSESSMENT MEETING ON TIME TO DEATH IN LARGE WHALE HUNTS – 2010.

This meeting reviewed data from NAMMCO member countries and Japan.

2ND ASSESSMENT MEETING ON TIME TO DEATH IN LARGE WHALE HUNTS 2015

The meeting reviewed and evaluated whale killing data from Greenland, Iceland, Norway, Japan, Canada and the USA. It also considered information on recent and ongoing research on improvements and technical innovations in hunting methods and gears used in the hunts. Protocols for collection of TTD data for hunts with deck mounted harpoon guns and statistical analyses of TTD in whaling operations were presented.

ASSESSMENT OF HUNTING METHODS FOR SMALL CETACEANS, 2011

Terms of reference for the Expert Group were to review and assess current hunting and killing methods for small cetaceans, to review and assess information on recent and ongoing research on improvements and technical innovations in hunting methods and gear used for

²²⁵ <https://nammco.no/topics/committee-on-hunting-methods-2/>

²²⁶ <https://nammco.no/topics/committee-on-hunting-methods-2/>

hunting of small cetaceans, to review and assess time to death (TTD) data on the killing of small cetaceans, and to give recommendations with respect to possible improvements.

BEST PRACTICES IN THE HUNTING AND KILLING OF SEALS, 2009

The expert group assessed different seal hunting methods within their contexts and addressed questions such as the use of specific hunting methods and equipment in particular settings, training requirements for hunters, control and monitoring of hunting methods, and research needs to improve the basis for further assessments. The expert group developed recommendations on best practices based on state of the art in sealing and identified where and how specific improvements could be made. Read the report.

Workshops (also listed on the NAMMCO website) convened by the Hunting methods committee include the following:

WORKSHOP ON STRUCK AND LOST, 2006

The Workshop addressed the issue of struck and lost in seal, walrus and whale hunting. The overall goal of the Workshop was to improve catch relative to effort, to reduce animal suffering and improve public image, and to formulate recommendations on methods, techniques and equipment to reduce struck and loss that are applicable at the local level.

WORKSHOP ON HUNTING METHODS FOR SEALS AND WALRUS, 2004

The aim of the Workshop was to improve the hunt with respect to safety and efficiency based on hunters' knowledge, science and the best available technology. The workshop formulated recommendations on best practice, minimum requirements, enhancements and technical innovations for weapons and ammunition.

WORKSHOP ON MARINE MAMMALS: WEAPONS, AMMUNITION AND BALLISTICS, 2001

The aim of the Workshop was to increase the understanding of weapon types, ammunition and ballistics and to formulate recommendations for weapons and ammunition for the different species. The Workshop addressed topics such as: weapon types and ammunition in combination with terminal ballistics, the impact of weapon types and ammunition on different marine mammals species and safety for the hunters with respect to weapons use.

WORKSHOP ON HUNTING METHODS, 1999

The Workshop reviewed and evaluated existing hunting methods in NAMMCO member countries including technical developments with respect to equipment and methods. It also examined possibilities for technical innovation and further enhancement of efficiency and safety of hunting methods, and provided recommendations for improvements, where relevant.

The extent to which NAMMCO produces the best advice on Hunting Methods relevant to the methods under its purview with respect to safety, efficiency, animal welfare and struck and lost reduction is reflected in the document prepared by the Secretariat²²⁷ which lists the recommendations from the expert working groups and workshops:

- From the 1999 workshop on hunting methods: 1 recommendation on the pilot whale hunt, 1 recommendation related to the killing of stranded northern bottlenose whales, 3 recommendations related to Greenland hunting of small cetaceans, and 7 recommendations related to baleen whale hunting.
- From the 2001 workshop: 8 recommendations related to hunters' knowledge, upgrading, maintenance and standardization of harpoon canons in Greenland, studies of different weapons and ammunition and, a new whale grenade.

²²⁷ PRP2018_12.

- From the 2004 workshop on seals and walrus: 18 recommendations related to hunter training, struck and lost estimates, minimizing animal suffering, caliber and bullets, full utilization and, hunter safety.
- From the 2006 workshop on struck and lost: 9 general recommendations related to minimizing animal suffering, monitoring, training of hunters, hunting equipment, cooperative management, sharing of technology and knowledge and, hunter safety, 4 recommendations on seal hunting, 13 recommendations concerning hunting of large whales, 4 recommendations related to hunting small whales and 4 recommendations related to walrus hunting.
- From the 2009 Expert Group meeting on best practices in hunting and killing of seals: 15 recommendations related to firearms, *hakapik* and club, bleeding out, combination of methods for stunning and killing and, training and education.
- From the Expert Group meeting 2010 – 1st assessment of TTD in large whales: recommendations for Norway, Iceland (minke and fin whales), and, Greenland (minke whale harpoon and rifle hunts, fin whales, bowhead and humpback) as well as processing of data, education and training and monitoring.
- From the Expert Group meeting 2011 on small whale hunting: 6 recommendations related to the Faroe Islands' drive hunt, 1 recommendation related to the Greenland hunt of pilot whales, dolphins and porpoises, 2 recommendations related to hunting of narwhal and beluga in Greenland, 2 recommendations on hunter training and 3 recommendations related to struck and lost.
- From the 2015 Expert group meeting – 2nd assessment of TTD in large whale: 1 recommendation for Norway, recommendations for Iceland concerning minke whales and fin whales, and recommendations for Greenland (minke whales – harpoon and rifle hunts), fin, bowhead and humpback as well as recommendations related to investigating the underlying reasons for struck and lost, statistical methods for analysis of struck and lost data, monitoring and, education and training.

Most of these workshops had the participation of representatives of a number of external experts from international interested parties. These included experts from the Department of Fisheries and Oceans (Quebec, Canada), Dept. of Indian and Northern Affairs (Canada), Fisheries and Oceans Canada (Canada), Human Society International (Canada), Inuvialuit Game Council (Canada), *Makivik* Corporation (Canada), Maurice Lamontagne Institute, (Quebec, Canada), *Nunavut Tunngavik* Inc (Canada), *Nunavut* Wildlife Management Board (Canada), University of Prince Edward Island (Canada), University of Copenhagen (Denmark), Game Management District Swedish-speaking Ostrobothnia (Finland), Kvarken Council (Finland), Institute of Cetacean Research (Japan), Wageningen University and Research Center (the Netherlands), Association of Traditional Marine Mammal Hunters of Chukotka (Russian Federation), *Svenska Jägerförbundet* (Sweden), *Sveriges Fiskares Riksförbund* (Sweden), Sweden's National Veterinary Institute (Sweden), Swedish Association for hunting and wildlife management (Sweden), Swedish Board of Agriculture (Sweden), Swedish Environmental Protection Agency (Sweden), Alaska Eskimo Whaling Commission (USA), Alaska *Nanuuq* Commission (USA), Makah Fishery Management (USA), North Slope Borough (Alaska, USA), and U. S. Fish and Wildlife Service (USA).

2.3.3.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERIA 2.3.1 AND 2.3.2

Answers from Survey respondents and interviewees to Q30-Q31 are included in Appendix 7.

Responses to the Panel's survey Q30 (*Extent to which NAMMCO produces the best advice on Hunting Methods relevant to the methods under its purview with respect to safety, efficiency, animal welfare and struck and lost reduction*) included: 11 "excellent", 11 "good" and 1 "satisfactory". There were no responses of "unsatisfactory" or "none".

Many of those interviewed by the Panel, including government representatives, scientists and hunters had positive comments concerning the advice from the Committee on Hunting Methods including the following:

- "output on hunting methods is a major achievement"
- "advice from the Committee on Hunting Methods has been successful in improving efficiency and welfare of hunts"
- "happy with work of Committee on Hunting Methods"
- "Committee on Hunting Methods manuals are the best output"

No negative comments on the outputs from the Committee on Hunting Methods were received.

Answers to Q31(*Extent to which NAMMCO cooperates internationally on these issues*) showed a strong satisfaction from all respondents (three "satisfactory", 10 "good" and 11 "excellent". Responses from interviews showed the same appreciation and recognition for NAMMCO's effort made to be inclusive and cooperate internationally.

2.3.3.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERIA 2.3.1 AND 2.3.2

[PRP18-RC44] The Panel **notes** that the Expert Group meetings and workshops have addressed issues concerning time-to-death (TTD), technical innovations in hunting methods and gear, weapons, ammunitions and ballistics, struck and lost, monitoring and hunter safety and training in the context of all hunting activities under the purview of NAMMCO.

[PRP18-RC45] The Panel **is of the view** that NAMMCO has addressed issues related to hunting methods in a comprehensive manner and produced the best advice on hunting methods covering the hunts of all of its members. Inclusion of experts in a broad range of subjects from both NAMMCO member countries and non-member countries and the incorporation of traditional and local knowledge from hunters has resulted in advice from the Expert Group meetings and workshops that is practical and scientifically and technically based. The Panel **reiterates** its view that NAMMCO's work on hunting methods has produced substantial results and that this is one of the key factors contributing to NAMMCO's credibility.

2.3.4 Adoption of advice on Hunting Methods and transcription in legal instruments

AREA 2 - HUNTING ACTIVITIES	
<i>General criteria</i>	<i>Detailed criteria</i>
2.4 Adoption of advice on Hunting Methods and transcription in legal instruments	<p>2.4.1. Extent to which NAMMCO Parties have adopted the advice on hunting methods given by NAMMCO.</p> <p>2.4.2. Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice.</p> <p>2.4.3. Extent to which legal instruments have been developed by the Parties for enforcing the advice.</p> <p>2.4.4. Extent to which NAMMCO Parties have worked for and succeeded in reducing TTD and struck and lost.</p>

2.3.4.1 INTRODUCTION TO DETAILED CRITERION 2.4.1 "EXTENT TO WHICH NAMMCO PARTIES HAVE ADOPTED THE ADVICE ON HUNTING METHODS GIVEN BY NAMMCO"

As described above, NAMMCO has supported a lot of work to develop advice on hunting methods through the Committee on Hunting Methods and its predecessors. That work has occurred primarily through the workshops and expert groups convened by the CHM and that have produced reports and recommendations related to improving hunting methods. The Council has explicitly endorsed or adopted most of the recommendations made by the participants in the workshops and expert groups, and the CHM has been able to act to implement a small number of them. However, action by individual NAMMCO members has been required to implement most of the recommendations. Our review finds evidence that individual NAMMCO members have implemented or expressed their intention to implement, many, but not all, of those recommendations.²²⁸

Many of the recommendations from the first of these events, the 1999 workshop on hunting methods, that were addressed to individual NAMMCO members have been implemented. However, the Panel was not able to find information that Greenland had conducted studies, in cooperation with hunters, on whether pointed or blunt bullets were most efficient for killing small whales. Instead, Greenland has drawn upon studies carried out by other NAMMCO countries to inform their regulations.

The recommendations from the 2001 workshop on marine mammals, weapons, ammunition and ballistics that were addressed to individual NAMMCO members were, for the most part, implemented or responded to. Studies conducted in Norway on rifles used as secondary weapons in the minke whale hunt served as the basis for one of the recommendations from the 2001 Workshop. Those studies concluded that full metal jacket, round nose ammunition from 9.3 mm calibre weapons and larger were very efficient in killing minke whales with a shot to the brain. The workshop recommended that this be taken into consideration when replacing weapons. While Norway has set 9.3 mm as the minimum calibre rifle for the minke whale hunt, Greenland or Iceland have adopted different requirements.

Another recommendation from the same workshop was that members consider hunter safety and animal welfare when developing all hunting regulations including those on hunting methods. This principle has been incorporated into Greenland Home Rule EO No. 10 of 13 April 2005 on the hunting of large whales (which has been replaced by EO No. 9 of 6 December 2018 on protection and hunting of whales). In Iceland, these issues are included in the regulation on whale hunting No. 163/1973 and in mandatory seminars for minke whale hunters, and Norway has incorporated them into its mandatory courses for hunters. In Norway the issue of animal welfare is governed by the Animal welfare law of 19 June 2009 and in the regulations on the practice of hunting for whales and seals²²⁹, the issue of safety of hunters are regulated by general Health and Safety regulations (ensuring safe working conditions, protection, security and welfare of in this case hunters). These concepts are incorporated into mandatory courses for Norwegian hunters. In the Faroe Islands the

²²⁸ The Review Panel conducted its work in English. As most of the laws, regulations, policies and guidance documents of the NAMMCO Members have not been translated into English, the Review Panel has used secondary materials, including the National Progress Reports that are filed each year by the NAMMCO Members. It also reviewed the meeting reports of various NAMMCO bodies, including the Council and the Committee on Hunting Methods, to assess whether or not various recommendations have been implemented. However, because effectively the Panel did not have access to all of the material through which each NAMMCO member might have implemented a recommendation the Panel is unable say that a recommendation has not been implemented. We can only note when it has been implemented.

²²⁹ 31 March 2000 - Regulation of the practice of hunting minke whales; 11 March 2003 - Regulation of the practice of hunting seals in the West Ice and the East Ice; 22 December 2009 - Regulation of the practice of hunting seals on the coast of Norway.

development of the new spinal lance and the hook is directly related to these issues and thus is incorporated in Executive order No. 9 from 26 January 2017. The Panel found no evidence that this recommendation has been implemented to cover all species in Iceland, Norway and Greenland, or at all in the Faroe Islands. The second workshop also recommended that recommendations from the first workshop that had not been addressed should be.

NAMMCO members also implemented many of the recommendations of the third workshop which focused on hunting methods for seals and walrus although the Panel found no evidence that Iceland, which takes a few grey and harbour seals a year, had implemented recommendations concerning hunter training or establishing requirements for weapons and ammunition for their seal hunt. There was also no evidence that either Norway or Iceland had local approaches to addressing struck and lost animals as recommended by the workshop participants although they [actively] participated in the more general work on these issues that was conducted by the CHM and NAMMCO. Also, only Norway seems to have followed through on studying the terminal ballistics of various calibre and bullet types in seal and whale hunting. Norway's work has been shared with and used by other NAMMCO members.

The workshop also recommended that all hunts should work towards the fullest possible utilization of harvested animals. Norway has noted that full utilization is not a goal in Norway, while Greenland requires that the useable parts be removed from the hunting place and the unusable destroyed²³⁰. The Faroe Islands does not require that animals killed around fish farms be fully utilized. Finally, the workshop recommended that members pay particular attention to risks of hearing loss and bullet ricochets and the need for protective clothing for extreme weather. It is not clear what NAMMCO members have done in response to this recommendation.

The fourth and most recent workshop focused on struck and lost animals. It generated the most recommendations of any of the workshops, although a number of those recommendations were repeated from earlier workshops. As was the case with recommendations from previous workshops, NAMMCO members responded positively to many of the recommendations. However, there were a few that were not implemented. Some of those were recommendations that had been made during previous workshops but not implemented by the NAMMCO members²³¹.

Others were new, such as the recommendation that new monitoring programs tailored to local conditions be developed to collect the necessary data on struck and lost animals. The Panel only found evidence of Greenland addressing this recommendation. Another recommendation that has not been fully addressed concerned developing suitable training materials for each area and hunt and including hunting in the school curriculum in areas in which there is hunting. Each of the NAMMCO members, and NAMMCO through the CHM, has developed some training materials, but not specific to each area and hunt. Greenland has established a school for hunting and fishing in North Greenland.

²³⁰ Greenland Parliament Act no. 12 of October 29th 1999 on hunting and game, § 2, sect. 3.

²³¹ E.g., access to better weather forecasting; avoid killing the whale before it is secured; develop a gun to deploy a harpoon attached to floats; strengthen international cooperation in order to facilitate access to information and technology and facilitate the purchase and transport of equipment, including weapons; make suitable ammunition available in hunting communities; protect hunters from hearing loss, ricocheting bullets and harsh weather.

The CHM convened the first of the expert groups in 2009. Building on the work conducted at the four workshops discussed above, the expert group examined seal hunting in the north Atlantic, including the Baltic Sea. It focused on: hunting methods and equipment used in specific hunts; training requirement for hunters; the control and monitoring of hunting methods; and research needed to improve the basis for further assessments²³². Participation in the Expert Group was limited to experts in the fields related to the issue of killing mammals. The CHM did not invite stakeholders and NGOs based on the rationale that the work was about the scientific and technical aspects of killing mammals and not on whether sealing should or should not occur²³³. The Expert Group made only six recommendations, all of which have been endorsed by the Council. The only recommendation not implemented by any of the members was that data be gathered that would allow an evaluation of the effectiveness of the hakapik and clubs as stunning tools across species. Greenland and Norway have taken steps to implement the Expert Group recommendation that there be further studies on the lethality of different types of ammunition for hunting seals of different species and age groups. Moreover, only Norway agreed to, for harp seals, conduct studies on the duration of bleeding when hunters cut axillary arteries on both sides.

The second Expert Group meeting was convened in 2010 and focused on assessing large whale killing data including research on improving hunting methods and gears used in the large whale hunts in the NAMMCO members²³⁴. The Expert Group developed 19 recommendations directed at one or more of the NAMMCO members²³⁵. Two of those recommendations were not fully implemented. They included the recommendation that experienced hunters in Greenland's minke whale rifle hunt should meet and exchange information with less experienced hunters including where to aim the shots²³⁶. The other recommendation that has not been fully implemented is the recommendation that the TTD criteria used across hunts be standardized. The information available to the Panel indicates that Iceland and Norway use the same criteria while Greenland uses different criteria that were developed by the IWC.

The third Expert Group meeting, which examined hunting methods for small cetaceans, resulted in eleven recommendations, only one of which has not been implemented. A lack of financial resources and time has kept Greenland from implementing the recommendation that alternative catching methods be developed for the net hunts for beluga and narwhal.

The most recent Expert Group meeting was the 2nd Expert Group Meeting on Assessing TTD data for large whales, including data from Japan. The outcomes from this Expert Group included several recommendations, many of which NAMMCO and its members are still in the process of implementing. The CHM is still working on addressing the recommendation that the reasons that animals are struck and lost be analyzed to decrease the occurrence of these events. The CHM is also working on organizing a workshop to look into less expensive ways of collecting standardized data on TTD. Several of the recommendations for which implementation is pending or in process involve Greenland and the collection and analysis of data that Greenland needs resources to complete. The Expert Group also recommended that Greenland organize practice training courses for gunners in the minke whale cannon

²³² Report of the Expert Group on Best Practices in the Hunting and Killing of Seals (2009), p. 5.

²³³ Report of the Expert Group on Best Practices in the Hunting and Killing of Seals (2009), p. 5.

²³⁴ Report of the NAMMCO Expert Group Meeting on Assessment of Large Whale Killing Data, p. 5.

²³⁵ The Expert Group also considered data provided by Japan, included a participant from Japan's Institute of Cetacean Research and provided recommendations related to Japan's whale hunts. The Panel did not review those recommendations as they are beyond the scope of its mandate.

²³⁶ Informal meetings among hunters do occur on a self-organized basis, but there is no indication that they provide the types of Information transfer that were suggested by the Expert Group.

hunt, and that hunters should be debriefed at the end of the season to provide an opportunity for an exchange of information and sharing of experiences. Greenland has indicated that it would prefer to continue to defer to the locally organized debriefing meetings organized by hunters independently of the Government.

2.3.4.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 2.4.1

Answers from Survey respondents and interviewees to Q32 are included in Appendix 7.

A majority of respondents believed that NAMMCO Parties had done a good job of adopting the advice on hunting methods given by NAMMCO, while approximately a quarter of the respondents believed that the Parties' actions had been excellent and somewhat fewer characterized them as satisfactory.

In the interviews and written survey responses at least one of the participants expressed the view that capacity building on hunting methods was necessary and that NAMMCO should work with Greenland to improve the minke whale hunt with rifles.

2.3.4.2 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 2.4.1

[PRP18-RC46] The Panel **concludes** that NAMMCO and its members have done a very good job of implementing the recommendations developed at the workshops and expert meetings organized by the CHM. While the Panel **did not find evidence** that all recommendations have been implemented, the Panel **believes** that such a result is to be expected. For one, NAMMCO members have limited resources and must prioritize the use of those resources based on their broader needs. Also, there can be competing policy goals that preclude the implementation of a particular recommendation. Finally, there are multiple ways in which these recommendations might be implemented.

[PRP18-RC47] Under these circumstances, the Panel **believes** that it would be best for the NAMMCO members to be as transparent as possible about how they are responding to the various recommendations. This should include identifying the recommendations that are not being implemented and the reasons for not implementing them. The Secretariat has developed a spreadsheet that is helpful in understanding what has and has not been accomplished. However, the presentation of information in that spreadsheet could be more transparent. In cases where implementation of a recommendation is delayed or declined because of inadequate resources, particularly concerning the collection and analysis of data, the Panel **encourages** NAMMCO members to explore ways in which they can share resources and allow the work to be completed or to be completed more quickly. Increasing collaboration in this manner will ultimately benefit the sustainable management of NAMMCO resources. Also, transparency about how NAMMCO members intend to respond to recommendations will help to sustain the goodwill and credibility that NAMMCO has earned because of its work on hunting.

2.3.4.4 INTRODUCTION TO DETAILED CRITERION 2.4.2 ON THE EXTENT TO WHICH NAMMCO PARTIES INVOLVE RESOURCE USERS IN DECIDING HOW TO IMPLEMENT NAMMCO ADVICE

See Section 2.2.6.4, as this criterion is identical to detailed criterion 1.6.2.

2.3.4.5 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 2.4.2

Generally, respondents appear to be happy with how this criterion has been implemented. 61 percent responded that the performance of NAMMCO members has been "good" to "excellent", while another 30 percent described performance as "satisfactory". Nine percent found the performance to be "unsatisfactory".

However, the written comments on the survey suggest that the question may not have been understood. The comments offered focused on how the NAMMCO process worked, not how the process in each country worked. In response to a follow-up email, Iceland stated that it did not involve resource users in the process of implementing NAMMCO advice as Iceland viewed that as a scientific process that should not be influenced by resource users (pers. comm. Iceland Councillor). This topic did not come up in the interviews.

2.3.4.6 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 2.4.2

See section 2.2.6.6 and PRP18-RC33 and PRP18-RC34.

2.3.4.7 INTRODUCTION TO DETAILED CRITERIA 2.4.3 "EXTENT TO WHICH LEGAL INSTRUMENTS HAVE BEEN DEVELOPED BY THE PARTIES FOR ENFORCING THE ADVICE"

The members have implemented some of the recommendations developed in the workshops and expert groups through the promulgation of legislation or regulations. For example, one of the recommendations coming out of the 1999 Workshop on Hunting Methods was that Greenland should conduct a critical analysis of its rifle hunt for minke whales and use the information gathered to reform the hunt. Greenland reports that it has improved reporting on the rifle hunt and modified its laws to limit the hunt²³⁷. The workshop also recommended that Greenland continue its work on improving the weapons used in the harpoon whale hunt. Greenland has updated its relevant laws to improve the management of this hunt²³⁸. The workshop also noted with approval Greenland's plans to implement an animal protection law to create an authoritative body with responsibility for integrating animal protection into Greenland's hunting regulations. Greenland followed through by adopting both the Home Rule Act No. 25 of 18 December 2002 on Animal Welfare, and the Home Rule Act No. 29 of 19 December 2003 on Nature Protection.

Recommendations from the Expert Group Meeting in 2009 and the CHM informed Greenland's legislation on sealing²³⁹.

The outcomes from the 2001 Workshop included a reference to the results of a study showing that full metal jacket, round nosed ammunition shot from a 9.3mm or larger calibre rifle was effective as a secondary weapon in the minke whale hunt. The Workshop recommended that this finding is taken into account when replacing weapons. Norwegian law already contained this standard²⁴⁰. Iceland has chosen to retain a higher standard in its legislation²⁴¹ and Greenland has chosen to adopt a smaller minimum size (30.06). Greenlandic authorities have suggested that they have taken this approach because of the cost to hunters of acquiring new weapons capable of using larger ammunition.

The workshop also emphasized the importance of ensuring that members consider both hunter safety and animal welfare when developing hunting regulations. Greenland has incorporated these principles in all its Executive Orders on hunting marine mammals and Iceland has included them in its regulation on whale hunting²⁴². Norway has incorporated them in a number of laws and regulations (see section 2.3.4.1 above). In the Faroe Islands

²³⁷ EO 10 of 13 April 2005 (on Hunting of Large Whales, as amended); EO No. 12 of 16 July 2010 (Reporting on Hunting of Large Whales)

²³⁸ EO No. 12 of 22 December 2014.

²³⁹ EO 16 of 12 November 2010 (Protection and hunting of seals)

²⁴⁰ Regulation 31 March 2000 on the conduct of minke whaling.

²⁴¹ Regulation on whale hunting no. 163 (1973), as amended.

²⁴² Regulation on whale hunting no. 163 (1973), as amended.

these issues have been considered when developing a new spinal lance and hook and have been incorporated them into legislation (see section 2.3.4.1 above) in 2017.

At the 2004 workshop on seals and walrus, participants recommended that methods, techniques, and equipment should be developed to reduce the number of Struck & Lost animals. The workshop also recommended that these tools be developed and applied at the local level to ensure their appropriateness. In response, Greenland adopted an Executive Order requiring that a walrus be harpooned before the hunter fires the fatal shot, as a way of minimizing Struck & Lost animals.²⁴³ Although the requirement was not developed and applied at the local level, as was recommended by the workshop, there is no indication that these rules were not appropriate for all of Greenland.

The workshop participants also recommended that hunters should make every effort to reduce the suffering of hunted animals by minimizing time to death and avoid struck and lost animals. Each of the NAMMCO members has incorporated these principles into its laws²⁴⁴. Finally, the workshop found that there was a need to establish minimum standards for firearms and ammunition for seal and walrus hunts. The workshop also acknowledged that the minimum standards might change depending on the particular hunt. Greenland has set minimum standards for ammunition for seal and walrus hunts²⁴⁵ while Norway has established minimum standards for ammunition and weapons for sealing²⁴⁶.

A number of the recommendations from the 2006 workshop on struck and lost led to NAMMCO members changing their laws. Some of those recommendations were repeated from earlier workshops such as the recommendation that hunters should make every effort to reduce the suffering of hunted animals and a recommendation concerning the use of appropriate weapons and equipment. Other recommendations were new such as one on training for hunters. In 2015, the Faroe Islands introduced legislation obligating hunters participating in the pilot whale hunt to take an accredited course on pilot whaling. Norway has instituted mandatory courses for sealers and whalers. Sealers must participate in a biannual course while captains and inspectors must take an annual course. New whalers are also required to take a course, and all shooters are required to take an annual test. Greenland and Norway have also adopted legislative and regulatory measures to address recommendations regarding the use of specific techniques, and the availability of particular equipment on seal hunts, to prevent animals from being struck and lost²⁴⁷.

In line with recommendations from the 2006 workshop, Greenland, Iceland and Norway have taken regulatory or legislative action to require that whalers have access to prescribed equipment to reduce Struck & Lost whales and to ensure that the time to death is as short as possible²⁴⁸. Also, the Faroe Islands have made use of the spinal lance mandatory in the pilot whale drive hunt as was recommended by the 2011 Expert Group Meeting on small

²⁴³ EO no. 20 of 27 October 2006 on protection and hunting of walrus.

²⁴⁴ See Faroe Island's animal welfare law; Greenland's Home Rule Act No. 25 of 18 December 2002 on Animal Welfare, and the one Rule Act No. 29 of 19 December 2003 on Nature Protection; Iceland's animal welfare law; Act of 19 June 2009 (Norway).

²⁴⁵ EO no. 16 of 12 November 2010 (Protection and hunting of seals); EO no. 20 of 27 October 2006 (Protection and hunting of walrus)

²⁴⁶ Act of 19 June 2009 No. 97—Animal Welfare

²⁴⁷ EO No. 16 of 12 November 2010 on protection and hunting of seals (Greenland) and Act of 19 June 2009 No. 97—Animal Welfare (Norway)

²⁴⁸ EO No 12 of 16 July 2010 (reporting from hunting and strike of large whales), EO No12 of 22 December 2014 (protection and hunting of large whales) (Greenland); Regulation No. 163 May 30, 1973) (Iceland); Act 19 June 2009 on animal welfare (Norway).

whale hunting²⁴⁹. For the hunting of pilot whales, dolphins and porpoises in Greenland, that expert group also recommended that data on struck and lost animals and TTD be gathered in a standardized manner to facilitate comparisons between hunts. Greenland has implemented portions of this recommendation by creating a licence requirement for hunters to report the point of impact of the bullet or harpoon, as well as the time-to-death.

2.3.4.8 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERIA 2.4.3

A majority of the respondents characterized the action of NAMMCO members as “good” on this criterion while several described them as “satisfactory”. A small but equal number of respondents described the actions of NAMMCO members on this criterion as either “excellent” or “unsatisfactory”.

2.3.4.9 PANEL’S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERIA 2.4.3

[PRP18-RC48] The Panel **finds** evidence that NAMMCO members have adopted legislation and regulations to implement NAMMCO advice as appropriate.

[PRP18-RC49] The Panel **recommends** that relevant legislation and regulations be updated consistent with any new advice from the Committee on Hunting Methods.

2.3.4.10 INTRODUCTION TO DETAILED CRITERION 2.4.4 “EXTENT TO WHICH NAMMCO PARTIES HAVE WORKED FOR AND SUCCEEDED IN REDUCING TTD AND STRUCK AND LOST”

The NAMMCO Council and its members, as well as some of the NAMMCO subsidiary bodies, have sought to both collect information on and reduce the “time to death” (“TTD”) of animals taken in the various hunts as well as to reduce the incidence of “struck and lost” animals. Hunters have also pointed out that given the amount of effort and resources that go into a hunt they have a strong incentive to avoid struck and lost animals. The efforts to collect information on and reduce the number of struck and lost animals also appears to be motivated by efforts to improve the management of the various NAMMCO stocks by ensuring that mortality is accurately recorded and uncertainty in the modelling of stocks is reduced²⁵⁰.

To date, two expert groups convened by the CHM have focused on assessing the TTD of large whales. The first met in 2009 with the objective of “*assess[ing] the presented whale killing data and giv[ing] recommendations with respect to possible improvements*”²⁵¹. The recommendations from the Expert Group included several that were intended to improve the collection and quality of data related to TTD and its analysis. The Expert Group also made recommendations that were intended to improve the efficiency (as measured by the “*Time-to-Death*” or “*Instantaneous Death Rate*” (“IDR”)) of the various hunts, including by improving gear and hunting technique and through the training of hunters²⁵².

A second expert group meeting on assessing TTD was convened in 2015 with the mandate to “*undertake a review and evaluate the whale killing data submitted to NAMMCO by member countries and associated hunting nations, as well as data and information on recent and ongoing research on improvements and technical innovation in hunting methods and gears used for the hunting of large whales*”²⁵³. The expert group concluded that there had

²⁴⁹ Parliamentary Act No 56 of 19 May 2015 (on pilot whales and other small whales) as amended by Parliamentary Act No 44 of 6 May 2016 and Executive Order No 100 of 5 July 2015 (on pilot whale drive).

²⁵⁰ Greenland has requested, on several occasions, that all future advice on quotas include struck and lost animals.

²⁵¹ NAMMCO Annual Report 2010, p. 53 (Report of the NAMMCO Expert Group Meeting on Assessment of Large Whale Killing Data).

²⁵² NAMMCO Annual Report 2010, pp. 77-90.

²⁵³ NAMMCO Annual Report 2015, p. 17 (Report of the Council).

been significant improvements in the IDR/TTD for Norway's hunt for minke whales²⁵⁴. However, due to the minimal data set the expert group found that it was unable to "*draw any firm and strong conclusions*" about the killing efficiency of Iceland's minke whale hunt. This hunt had an IDR of 69% over two seasons despite the use of the same weapons as were used in Norway's hunt, which in 2012 had an IDR of 82%²⁵⁵. The expert group also found that there had been successful efforts to improve the efficiency of Iceland's fin whale hunt resulting in an IDR of 84%²⁵⁶.

In considering the TTD data for Greenland, the expert group noted that these data are biased high because they are based on estimates by hunters and uncorrected by post-mortem examination²⁵⁷. However, it also acknowledged that Greenland is working on improving the presentation and analysis of its data so that it is more statistically informative. The expert group concluded that the IDR for Greenland's harpoon grenade minke whale hunt was improving and moving towards greater than 50%²⁵⁸. In contrast, the expert group found that the IDR for Greenland's minke whale rifle hunt would seldom be above 0%²⁵⁹.

Concerning some of the other hunts, the expert group found that its ability to draw firm conclusions was hampered by a lack of data, although it did state that the IDR for Iceland's minke whale hunt looked "*favourable*". For the fin whale hunt in Greenland, the expert group concluded that although it could not draw any reliable conclusions, it did find a 1% increase in IDR after the introduction of a higher penthrite charge in 2013 and 2014. The sample size for Greenland's bowhead whale hunt was too small to serve as the basis for any conclusions²⁶⁰.

The conclusions and recommendations of the experts group, as subsequently amended and endorsed by the CHM, included: 1) concern that the rifle hunt in Greenland seems to be increasing, as a result of demand for meat that is not being met by the harpoon grenade hunt; 2) the importance of increasing, through training, hunters' awareness of the influence of the shooting angle relative to the animal's body in order to reduce TTD; 3) the need for monitoring TTD in all hunts at 10 years intervals; and 4) the need to organise a workshop on alternative methods for collecting standardised TTD data that are less expensive, thus making it easier to compare TTD between countries. The Council noted and endorsed the recommendations of the Committee²⁶¹.

In 2011 the CHM convened a meeting of the Expert Group to Assess the Hunting Methods for Small Cetaceans. Recommendations from that meeting emphasized the need to collect data in a standardized manner across hunts to allow for comparison between hunts and the improvement of the various hunts and struck and lost and TTD rates²⁶². Also, participants noted that Greenland permits netting beluga and narwhal in East Greenland and one location in North West Greenland. The expert group noted that this technique likely caused stress for the animals and prolonged the time of death. The expert group recommended that Greenland develop alternative catching methods²⁶³. While the participants did not have

²⁵⁴ NAMMCO Annual Report 2015, p. 17 (Report of the Council)

²⁵⁵ NAMMCO Annual Report 2015, p. 17 (Report of the Council)

²⁵⁶ NAMMCO Annual Report 2015, p. 17 (Report of the Council)

²⁵⁷ NAMMCO Annual Report 2015, p. 143 (Report of the TTD Expert Working Group)

²⁵⁸ NAMMCO Annual Report 2015, p. 143 (Report of the TTD Expert Working Group)

²⁵⁹ NAMMCO Annual Report 2015, p. 143 (Report of the TTD Expert Working Group)

²⁶⁰ NAMMCO Annual Report 2015, p. 149 (Report of the TTD Expert Working Group)

²⁶¹ NAMMCO Annual Report 2015, p. 20.

²⁶² Report of the NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans (2011), p. 33.

²⁶³ Report of the NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans (2011), p. 33.

time to formally discuss the issue of struck and lost animals at this meeting, Greenland and Canada agreed that an exchange of information and experience on the collection of struck and lost rates for marine mammal harvests would be beneficial²⁶⁴.

At its 2015 meeting, the Council also endorsed the CHM's recommendation that NAMMCO review the underlying reasons for animals being struck and lost with the aim of decreasing the rates at which this occurred²⁶⁵. In 2016, the CHM had further discussions on the reasons why animals are struck and lost and the rates at which these events occur²⁶⁶. The CHM based its discussion on a background paper prepared by the Secretariat²⁶⁷. The information collected by the Secretariat sought to quantify the rates at which animals are struck and lost in each of the different hunts. It also included possible reasons for animals being struck and lost. The discussion proceeded hunt by hunt. One outcome from the meeting was the preparation of a document that has been made available on the NAMMCO webpage²⁶⁸. This document provides information on how to avoid losing animals that have been struck including information on where to target an animal.

The CHM reviewed information on the collection of struck and lost data in the different hunts, including with regards to rates, causes, reduction, and data collection. It concluded that the collection of struck and lost data for large whales was reliable while the collection of such data for the small whale and seal hunts is a big challenge²⁶⁹.

At NAMMCO 24 the Council asked the Scientific Committee and the CHM to provide advice on the best methods for collecting the needed data on struck and lost animals. Both Committees agreed that the best method was to have each of the different types of hunts observed, as struck and lost rates vary between species and hunts. However, both Committees also noted that this approach would be logistically and financially challenging²⁷⁰. The Scientific Committee specifically, noted that the struck and lost rates that are based on hunter interviews is often not reliable enough for use in assessments²⁷¹.

A 2006 study of the drive hunt in the Faroe Islands suggests a significant reduction in the level of struck and lost animals has resulted from changes in the way in which it conducts the hunt. The study concludes that for the hunts evaluated no animals were struck and lost²⁷².

2.3.4.11 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 2.4.4

While a substantial majority of the respondents to the questionnaire felt that NAMMCO has worked for and succeeded in reducing the time to death and incidence of "*Struck and Lost*" in the hunts conducted by NAMMCO members, a small number responded that performance had been unsatisfactory.

2.3.4.12 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 2.4.4

[PRP18-RC50] Based upon the information provided, the Panel **concludes** that NAMMCO has identified increasing IDR and minimizing TTD as goals. The Panel also **concludes** that while members have made significant improvements in IDR/TTD in many of the harpoon

²⁶⁴ Report of the NAMMCO Expert Group Meeting to Assess the Hunting Methods for Small Cetaceans (2011) at page 34.

²⁶⁵ NAMMCO Annual Report 2015, p. 20.

²⁶⁶ Report of the Committee on Hunting Methods – 18 October 2016.

²⁶⁷ NAMMCO/CHM-October/2016-5.

²⁶⁸ <https://nammco.no/wp-content/uploads/2018/08/information-sheet-on-struck-and-lost-rev.pdf>

²⁶⁹ NAMMCO Annual Report 2016, p. 13.

²⁷⁰ NAMMCO Annual Report 2016, p. 16.

²⁷¹ NAMMCO Annual Report 2016, p. 103.

²⁷² NAMMCO Annual Report 2016 107-113 (Report from the NAMMCO Workshop on Struck and Lost in Seal, Walrus and Whale Hunting).

grenade whale hunts, there are still differences, some of which are significant, among the rates for these hunts and there is still room for improvement. To improve performance on these metrics, NAMMCO needs to continue its efforts to understand the reasons for the different rates in different hunts. Improved data collection and data analysis, particularly for several of the hunts in Greenland, is required.

[PRP18-RC51] The Panel **also shares the concerns** that have been expressed by the CHM and others about the IDR/TTD and struck and lost rates for the rifle hunt of minke whales in Greenland. The evidence suggests that this hunt, by its nature, can never have "*an acceptable IDR/TTD rate*" and that its Struck & Lost rate will remain "*unacceptably high*". In addressing these limitations, Greenland must also take into account the apparently increased reliance on this hunt for the meat that it produces.

[PRP18-RC52] The information reviewed by the Panel also demonstrates that NAMMCO has focused on gaining an understanding the number of animals that are Struck & Lost in various hunts and the cause of these events to reduce the level of Struck & Lost animals. For large whales, the data demonstrate that the number of animals Struck & Lost is low and that NAMMCO members have made progress in reducing those numbers. However, for small cetaceans, it is not possible to assess whether efforts to reduce the number of animals that have been struck and lost have, to date, had any impact. The requisite data is not available, or its quality is not very high. The Panel **recommends** that the CHM and the Scientific Committee continue to work to define better methods for collecting data from all hunts on the occurrence of Struck & Lost events and the circumstances surrounding those events. These efforts should continue to respond to the recommendations from the various workshop and expert group meetings. This Information is useful for providing better assessments, with reduced levels of uncertainty, and developing hunting guidance that reduces these occurrences.

[PRP18-RC53] The Panel **encourages** the CHM to continue its practice of working with people representing a wide range of interests, including hunters, on these issues.

2.4 Compliance and enforcement

2.4.1 Enforcement of hunting legislation

AREA 3 – COMPLIANCE AND ENFORCEMENT	
<i>General criteria</i>	<i>Detailed criteria</i>
3.1 Enforcement of hunting legislation	3.1.1 Extent to which NAMMCO monitors hunting activities and their compliance to national legislation and NAMMCO recommendations.

2.4.1.1 INTRODUCTION TO DETAILED CRITERION 3.1.1 'EXTENT TO WHICH NAMMCO MONITORS HUNTING ACTIVITIES AND THEIR COMPLIANCE TO NATIONAL LEGISLATION AND NAMMCO RECOMMENDATIONS'

The monitoring of marine mammal hunting activities under the jurisdiction of the members of NAMMCO occurs under two different programs. Each of the members has a national control program for marine mammal hunting that includes some elements of monitoring. Also, NAMMCO has adopted the Joint NAMMCO Control Scheme for the Hunting of Marine Mammals (Control Scheme). The Control Scheme consists of two components. Section A seeks to develop common elements for the national programs of relevant NAMMCO members for the inspection of coastal whaling operations that are conducted from vessels using a harpoon gun. Section B creates an international observation scheme (Observation

Scheme) for the four NAMMCO members that covers all hunting of marine mammals²⁷³. The Council adopted the Control Scheme in 1996.

Information collected through both the national programs of the NAMMCO members and the NAMMCO Observation Scheme informs the Panel's review of this criterion. At the February 2014 meeting of the CIO, NAMMCO members began to provide "*National Monitoring Data*" describing, among other things, the number and type of inspections conducted related to marine mammal hunting and the number of violations detected²⁷⁴.

Each of the NAMMCO members has a different program. In the Faroe Islands, for example, there are no national inspectors. Instead, the District Administrator ("*Sysselman*") and the whaling foreman leading the hunt handle the control and monitoring of each of the drive hunts²⁷⁵. The District Administrator is also responsible for reporting information on the drive hunt to the Ministry of Fisheries, including whether there have been any violations. Harbour porpoises may also be hunted in the Faroe Islands, although it doesn't seem to happen very frequently. There is no monitoring of these hunts although hunters are obliged to report any takes to the district administrator who then provides the information to the Ministry of Fisheries. The Faroes Islands permits the shooting of grey seals that are predating around fish farms. Iceland recently began to require that fish farms' small takes of grey seals must be reported to the Ministry of Fisheries.

Greenland, on the other hand, has wildlife officers as part of its regular national control. These officers work in close cooperation with municipal authorities, the police, and the Arctic Command and are responsible for following and controlling large whale hunts, beluga and narwhale hunts, and seal and walrus hunts. Inspection and monitoring at sea is carried out on a random basis, but more frequently during hunting seasons, and during the migration of the animals. On land, inspectors check hunting permits and products as they come into the harbour or later when they are being sold. The reporting system in Greenland is a self-reporting system. Every hunter or a responsible person (such as a captain of a harpoon boat) taking a marine mammal under license must complete a reporting form and submit it to the Ministry of Fisheries, Hunting, and Agriculture within a short time of landing the animal. Hunters must take DNA samples from all harvested whales and submit them to the Greenland Institute of Natural Resources. No edible products from a marine mammal may be sold before it has been properly reported. Hunters are also required to report animals that have been "*Struck and Lost*".

Norway uses the Electronic Trip Recorder (Blue Box) to monitor the activity of its whaling vessels automatically. Norwegian law requires that this system is utilized on all trips. Only Norwegian government officials can access it. After the hunting season is over, information from the system is downloaded, decrypted and reviewed by Inspectors from the Directorate of Fisheries. Until the introduction of the Electronic Trip Recorder (2006), (also referred to as "*the box*" or "*the blue box*") it was mandatory to have inspectors on all whaling vessels during a hunt. After the introduction of the box, inspectors may also conduct periodic and random checks of hunting activities, but no inspectors have been placed on whaling vessels since 2012. Hunters are required to electronically report catch (or no catch) on a daily basis. In addition, Norway has a DNA register that contains samples from all harvested whales.

Sealing activities are also 100 % controlled and monitored. Norway requires inspectors for the Directorate of Fisheries on all vessels that are hunting seals. In addition, a catch log book

²⁷³ Provisions of the Joint NAMMCO Control Scheme for the Hunting of Marine Mammals, 1997.

²⁷⁴ NAMMCO AR (2014) at 50 (Report of the Committee on Inspection and Observation).

²⁷⁵ Report of the Committee on Inspection and Observation 22 January 2015 at 1.

must be maintained. There is no mandatory report of "*Time to Death*" or the "*instant death rate*" for either whales or seals.

In Iceland, the whale hunt is subject to random inspections carried out by the Directorate of Fisheries. Iceland requires hunters to self-report their catches to the Ministry of Industry and Fisheries. Also, DNA samples are taken from all harvested whales and submitted to the Marine and Freshwater Research Institute. Seal hunters are not required to report their catches. Data is gathered through a survey process.

In 1997, the Council adopted Guidelines for the implementation of the Observation Scheme which was first implemented in 1998. As set forth in its introduction, the purpose of the "*international observation scheme among NAMMCO member countries is to provide a mechanism for NAMMCO to monitor whether decisions made by the Commission are respected. For this purpose, NAMMCO appoints observers who oversee hunting and inspection activities in NAMMCO member countries.*" The observers are to oversee hunting activities and determine whether they are compliant with NAMMCO decisions and relevant national legislation.

The Secretariat manages the NAMMCO Observation Scheme. Each year, NAMMCO members nominate observer candidates which are then formally appointed by the Council. From this pool of candidates, the Secretariat selects the ones that will be contracted for the year. A NAMMCO inspector must meet the same qualifications and training as a national inspector and must be familiar with all of the relevant regulations and laws for the hunt which they are being contracted to observe. NAMMCO inspectors are not permitted to observe hunts in their home country.

During the period which they are observers, NAMMCO Observers are employed by and responsible to only the Secretariat. Their mandate is to observe and report, and while they are to be given the access which they need to carry out their duties, they have no authority to interfere with hunting operations. In cases where a national inspector is not present, and where NAMMCO observers detect an infringement involving the catch of a protected species or from a protected stock, the exceeding of a quota, hunting in restricted areas, hunting without a required license, or the use of unauthorised equipment, the observer is instructed to immediately inform the control authorities of the flag state through the Secretariat.

At the end of an assignment, the observer prepares a report on its observations, using a standard form, that is submitted to the Secretariat. The observer may also be asked to provide a diary for the use of the Secretariat. If the observer has detected a violation of the regulations, the observer is also required to submit a written report that is shared with both the Member Country and the owner of the vessel. Other than these required communications, the observer is to maintain the confidentiality of their observations.

Until 2002 observations were conducted from land. Currently, most observations are conducted from on board vessels, but in some instances, in Greenland in particular, observers are on different vessels than hunters. All of the observations in the Faroe Islands have been conducted from land. Also, until 2003, all regions and hunts were observed each year. Beginning in 2003, NAMMCO changed its strategy from observing all hunts to focusing on specific hunts each year. The hunt or hunts to be observed were determined by the Council based on recommendations from the Secretariat. This change was, in part, related to making the best use of the Commission's limited resources. Table 4 provides an overview of the activities that have been observed over the lifetime of the program. In most cases

where observation has been indicated, only a portion of the activity for the year was observed.

Table 4 - Overview of the activities that have been observed over the lifetime of the NAMMCO Observation Scheme

Year	comprehensive on-land observations										selective on-board observations (where possible)									
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NO Minke whale																				
NO Harp & Hooded seal																				
IS Fin whale																				
IS Minke whale																				
FO Pilot whale																				
GL all hunts																				

* Cells marked in grey are observed events
* Pink cells are years when there was no hunt

The costs of operating the scheme have significantly varied depending on the hunt or hunts observed. The cost of the program can take up a significant part of the Commission's budget. The annual budget for implementation of the Observation Scheme has ranged from NOK 45,632 to 196,860. Table 5 below provides more detail on the yearly cost and the hunts that were associated with particular levels of expenditure. The availability of resources and the efficiency with which they are used can impact the usefulness of the Observation Scheme. For example, in 2015 the inspection scheme focused on the Faroe Islands drive hunt for pilot whales. While the inspectors were on site for 44 days, they were only able to observe one out of six hunts. The total cost of that deployment was more than NOK 174,000. Overall, there have been 167 pilot whale drive hunts in the Faroe Islands since the inception of the Observation scheme. Only seven have been observed.

Table 5 - NAMMCO Observation Scheme: yearly cost and the hunts that were associated with particular levels of expenditure

Year	2003	2004	2005	2006	2007	2008	2009	2010	2010	2011	2011	2012	2013	2013	2013	2014	2015	2016	2017
Region and hunt	NO, minke whale	GL	NO, pack ice seal	GL	FO, pilot whale	NO, pack ice seal	NO, minke whale	IS, minke whale	IS, fin whale	GL	IS, minke whale	FO, pilot whale	NO, minke whale	IS, minke whale	IS, fin whale	GL	FO, pilot whale	NO, minke whale	IS, minke whale
Price per year, in NOK	145359	196860	92469	90771	45362	123172	66782	56816		109028		64252		166367		94644	174508	163338	70301
Price per hunt, in NOK	145359	196860	92469	90771	45362	123172	66782	28408	28408	90740	18288	64252	106878	29744	29744	94644	174508	163338	70301
Vessels (grinds for FO) observed	4	n/a	1	n/a	1	1	1	1	2	n/a	1	1	2	1	1	n/a	1	5	2
Catch observed	25	n/a	2676	n/a	n/a	1250	21	2	3	n/a	2	n/a	9	4	4	n/a	n/a	20	17
Obs. days utilised	44	40	50	25	16	31	21	4	7	23	3	22	26	10	10	21	44	49	21
Year	2003	2004	2005	2006	2007	2008	2009	2010	2010	2011	2011	2012	2013	2013	2013	2014	2015	2016	2017
Region and hunt	NO, minke whale	GL	NO, pack ice seal	GL	FO, pilot whale	NO, pack ice seal	NO, minke whale	IS, minke whale	IS, fin whale	GL	IS, minke whale	FO, pilot whale	NO, minke whale	IS, minke whale	IS, fin whale	GL	FO, pilot whale	NO, minke whale	IS, minke whale
Price per year, in NOK	145359	196860	92469	90771	45362	123172	66782	56816		109028		64252		166367		94644	174508	163338	70301
Price per hunt, in NOK	145359	196860	92469	90771	45362	123172	66782	28408	28408	90740	18288	64252	106878	29744	29744	94644	174508	163338	70301
Vessels (grinds for FO) observed	4	n/a	1	n/a	1	1	1	1	2	n/a	1	1	2	1	1	n/a	1	5	2
Catch observed	25	n/a	2676	n/a	n/a	1250	21	2	3	n/a	2	n/a	9	4	4	n/a	n/a	20	17
Obs. days utilised	44	40	50	25	16	31	21	4	7	23	3	22	26	10	10	21	44	49	21

Two infractions have been reported during the 20 years the Observation Scheme has been in place. Both occurred in 2001. In Greenland, an observer noted that two vessels did not have the proper line or trawler winch on-board as required by national law, but instead were

equipped with a hydraulic "*power block*" mounted on the boom. In Norway, an observer was denied access to a minke whaling vessel contrary to the license requirement.

After seven years of operation, the CIO requested that the Secretariat prepare a review of the operation of the Observation Scheme. In 2005, the Secretariat provided its report, along with a recommendation for improvement of the Observation Scheme which was amended in 2006. The text of the Control Scheme was rewritten in 2009, and the Secretariat initiated a second review of the operation of the Observation Scheme in 2017. A draft of the report on the Secretariat's analysis was presented to the CIO which was tasked by the Council with continuing work on the review and reporting back to Council²⁷⁶.

2.4.1.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 3.1.1

Answers from Survey respondents and interviewees to Q36 are included in Appendix 7.

Approximately equal numbers of respondents to the survey found that the extent to which NAMMCO monitors hunting activities is "*Excellent*", "*Good*" or "*Satisfactory*" while slightly fewer found that it was "*Unsatisfactory*". Written comments provided in response to the survey raised concerns about the observations being limited due to a lack of funding or a work in progress that needs improvement. One commenter, who rated the observation scheme as "*Unsatisfactory*" noted that the scheme does not produce reliable data. Another cited the implementation review prepared by the Secretariat in 2018 as supporting the view that the implementation scheme is unsatisfactory.

Interviewees generally had positive things to say about the observation scheme. The international observation scheme was described as one of the major achievements of NAMMCO. An interviewee chair of the CIO said that they were very satisfied with the work of the CIO and its outputs. Another one said that the Observation Scheme needs to improve its output which could be helped by better definitions of what needs to be observed and increasing the frequency of observations. They noted that the frequency of inspections under the scheme was okay for members with one or two hunts but not for those that hunt more.

2.4.1.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 3.1.1

[PRP18-RC54] NAMMCO and its members have established a two-part system for monitoring compliance with national laws. One part consists of the national monitoring programs developed by each of the Members. The Panel **has not examined and did not comment** on these programs. The other part is the "*NAMMCO Observation Scheme*". The Panel **is concerned** that the Observation Scheme does not provide benefits that are commensurate with its costs. Therefore, the Panel **recommends** that the Council use the ongoing review of the NAMMCO Observation Scheme as a catalyst for reform. The Panel **believes** that the first step in a reform effort should be to clearly define, in NAMMCO's overall Strategic Plan, NAMMCO's objectives for observing the hunts of marine mammals in NAMMCO's area. The Scheme currently establishes that its purpose "*is to provide a mechanism for NAMMCO to monitor whether decisions made by the Commission are respected.*"²⁷⁷ This purpose seems somewhat out of step with the NAMMCO Agreement as the Commission makes recommendations that are implemented at the discretion of the individual members.²⁷⁸ In establishing the objectives of the Observation Scheme, the Panel

²⁷⁶ NAMMCO Annual Report 2017, p. 14.

²⁷⁷ ²⁷⁷ Provisions for the Joint NAMMCO Control Scheme for the Hunting of Marine Mammals.

²⁷⁸ Proposed modifications of the Scheme that are under consideration by the CIO could partially address this concern. See, NAMMCO (2018) Report of the NAMMO Committee on Inspection and Observation 28 November 2018 at p.4. However, it

urges the Council to consider the costs of and benefits from the current scheme. To date, only two infractions have been reported in the 20 years that the Scheme has been in operation. It seems improbable that this accurately reflects the levels of compliance in NAMMCO's hunts. The cost of this effort has been 1.66 million NOK. The Panel **doubts** that the amount of hunting activity observed, along with the fact that hunters have advanced notice that particular hunts are being observed, allows for NAMMCO to obtain an accurate picture of how the hunt for a specific species in a particular manner occurs over time. The Panel **recognizes** that there may be benefits to NAMMCO that result from the fact that it monitors hunting activities. The Panel **believes** that those benefits quickly diminish and can become a liability if the mechanism for monitoring hunts is viewed as not providing an accurate portrayal of the hunts. If the Council determines that one of the objectives of the scheme is to obtain an accurate understanding of the level of compliance with national laws implementing NAMMCO recommendations, the Panel **believes** that significantly more resources will need to be devoted to the operation of the Observations Scheme. Given the many significant demands on the limited resources of the Commission, the Council may consider taking an alternative approach to compliance monitoring such as conducting regular audits of the inspection programs of each of the members and providing support for improving the functioning of those programs where appropriate. Finally, the Panel **recommends** that if the Commission is to continue to operate the Observation Scheme the Council explore ways of making the work done under the Observation Scheme more transparent. Currently, the only information on the NAMMCO website about the outcomes of the work under the scheme is contained in the reports of the CIO meetings. If the Council decides that continuing the operation of the Observation scheme is in the strategic interests of the Commission, it should also consider how to make the results of that work more easily accessible to stakeholders.

2.5 Decision-making

2.5.1 Decision-making

This section is related to sections 2.2.6.4 (detailed criterion 1.6.2 of the 'Conservation area') and 2.3.4.6 (detailed criterion 2.4.2 of the 'Hunting activities area'). Recommendation in sections 2.1.3 (on NAMMCO overall objectives), 2.2.5.3 (criterion 1.5.1), and 2.2.5.6 (criterion 1.5.2) are also relevant.

AREA 4 – DECISION-MAKING	
<i>General criteria</i>	<i>Detailed criteria</i>
4.1 Decision-making	<p>4.1.1 Extent to which resource users and stakeholders are involved in NAMMCO decision making.</p> <p>4.1.2 Efficiency of NAMMCO in addressing critical issues in a timely and effective manner.</p> <p>4.1.3 Extent to which NAMMCO has transparent, consistent and adequate advice-making procedures that facilitate the adoption by Parties of conservation and management measures and measures related to hunting methods in a timely and effective manner.</p>

would make more sense to conduct a legal review that looks at the laws or regulations themselves to see if NAMMCO recommendations were incorporated. The Observation Scheme should look at whether the Member's laws and regulations, whatever they are, are being complied with and, if not, whether enforcement actions are being taken.

2.5.1.1 INTRODUCTION TO DETAILED CRITERION 4.1.1 EXTENT TO WHICH RESOURCE USERS AND STAKEHOLDERS ARE INVOLVED IN NAMMCO DECISION MAKING

One way in which NAMMCO members include some groups of resources users and stakeholders in the decision-making process is by including their representatives on delegations to meetings of the Council and Management Committees. Over the years, pilot whalers from the Faroe Islands, whalers from Iceland and Norway and hunters and officials from *Kalaallit Nunaanni Aalisartut Piniartullu Kattuffiat* (KNAPK) in Greenland have regularly participated as members of their respective delegations.

As discussed earlier in this report (see section 2.3.3.1 on Hunting Activities), NAMMCO has worked with hunters and other relevant resource users to develop recommendations on improving hunting methods including concerning hunting efficiency, animal welfare, the conservation of resources and hunter safety. This work has been done through workshops and expert groups convened by the Committee on Hunting Methods. Hunters have played a vital role in the work of many of those groups and contributed significantly to the development of recommendations that have been implemented by the Commission and its members.

NAMMCO has also devoted resources to exploring the role of "*traditional*" or "*user*" knowledge in the work of the Scientific Committee and in the decision-making process for developing management recommendations. At its 8th meeting, the Council asked the Scientific Committee to develop a strategy for incorporating the knowledge of marine mammal users into the Committee's scientific advice.²⁷⁹ The Scientific Committee proposed to the Council that both scientific knowledge and the knowledge of hunters be included in NAMMCO's "*Status of Marine Mammals in the North Atlantic*" report. This report would contain a discussion about the stock status of each of the marine mammal species in the North Atlantic with contributions from both the scientists and the hunters.

The Council decided to put further evaluation of the proposal on hold pending the outcome of a NAMMCO organized conference on User Knowledge and Scientific Knowledge in Management Decision-Making. That Conference was held in January of 2003 and attended by approximately one hundred and twenty people. After considering the report of the conference and concluding that significant work needed to be done on integrating user knowledge into management decision-making the Management Committee established a Working Group to move work on this issue forward.²⁸⁰ One of the responsibilities of the Working Group was to consider the proposal of the Scientific Committee in light of the outcomes from the conference and make a recommendation on whether to proceed with or modify the proposal. Membership on the Working Group included resource users, managers, scientists, and the Secretariat.

When the issue of "*user knowledge*" was shifted from the agenda of the Management Committees to the agenda of the Council organizational responsibility for the working group was also transferred to the Council. However, when the Council determined that the Management Committees could best address these issues, "*user knowledge*" became a standing item on the agendas of the Management Committees and that the Working Group, which only met once, was disbanded.²⁸¹ Over this period, other actions were taken to better integrate user knowledge into the work of the Commission including the publication of the proceedings from the 2003 Conference. In addition, user knowledge was identified as

²⁷⁹ NAMMCO Annual Report 1998.

²⁸⁰ NAMMCO 12 Annual Report 2002, p. 37.

²⁸¹ NAMMCO 17 Annual Report 2008, p. 23.

valuable input into the work on ecosystem-based management and critical to efforts to reduce the number of animals that are struck and lost, and the Joint Working Group sought information from hunters at the planning stage for future beluga surveys. User groups like the KNAPK continued to point out ways in which user knowledge can be used in management decision-making.²⁸²

Greenland, in particular, has continued to look for ways to advance this issue, including by implementing Greenland relevant recommendations from the Conference²⁸³. While broad discussions of this issue have disappeared from the agendas of the Council and the Management Committees, it continues to be discussed in the context of the management of individual stocks and to be championed by Greenland.

Also relevant to the analysis of this criterion is the role of observers in NAMMCO and what that says about the transparency with which NAMMCO conducts its work. These issues are described in greater detail below in section 2.6.1.1.

Finally, NAMMCO members often (and in some cases, always) include resource users on the delegations for Council meetings.

2.5.1.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 4.1.1

Equal numbers of respondents found that the involvement of resource users and stakeholders in the NAMMCO process was "*Good*" or "*Satisfactory*", while a slightly smaller number found that that it was "*Excellent*" and an even smaller number found the process "*Unsatisfactory*".

In written comments one survey respondent noted that language is a potential barrier to stakeholder participation in NAMMCO decision-making. As proposals are presented in English and often acted upon shortly after presentation, there can be little time for translating the proposal to make it available to non-English speakers, particularly those who speak only Greenlandic. Another respondent noted that the existing process is very inclusive. One respondent expressed the view that stakeholder involvement should be largely at the individual delegation level and another responded that the level of involvement depended on the particular NAMMCO member. Other respondents suggested that the level of participation by stakeholders depended on the subject matter, noting that there was a lot of participation in the work of the CHM and less in the development of management measures. Where the decision-maker is the Council, participation of stakeholders was described as non-existent by one of the respondents. More stakeholder participation was seen at the working group level and, at times, in some of the committees. One respondent found that guidance on the participation of stakeholders in working groups has been contradictory and unclear. This respondent felt that while hunters did not need to be at every meeting there was room for greater discussion between resource users and scientists.

2.5.1.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 4.1.1

[PRP18-RC55] The Panel **finds** that the efforts of NAMMCO and its members to involve resource users in NAMMCO decision-making are important. Engagement with resource users expands the information that NAMMCO has for making decisions. In addition, NAMMCO's engagement with resource users also increases the transparency of NAMMCO's work and increases the credibility of the organization among those who participate. NAMMCO has also made important efforts to understand, and to the extent appropriate

²⁸² NAMMCO 17 Annual Report 2008, p. 98.

²⁸³ NAMMCO 20 Annual Report 2011, p. 78.

make better use of, user knowledge in the work of the Scientific Committee and in management decision-making. The Panel **believes** that NAMMCO could build upon work already begun to make additional progress that would benefit NAMMCO and its work. The Panel **encourages** NAMMCO to consider, in the process of developing a Strategic Plan, how it might appropriately expand the role of user knowledge in its work.

[PRP18-RC56] The Panel **also notes** that other stakeholders have not generally been engaged in the work of NAMMCO.

2.5.1.4 INTRODUCTION TO DETAILED CRITERION 4.1.2 "*EFFICIENCY OF NAMMCO IN ADDRESSING CRITICAL ISSUES IN A TIMELY AND EFFECTIVE MANNER*".

We discuss a number of the critical issues faced by NAMMCO and how it has responded to them in other parts of this document. These include in the discussion of general criteria 1.1 (status of marine mammal stocks), detailed criteria 1.6.5 (extent to which NAMMCO Parties have moved towards the adoption of conservation and management measures for previously unregulated takes, including new and exploratory hunting activities and bycatch), and detailed criteria 1.6.7 (extent to which NAMMCO has proposed and Parties have adopted and are implementing effective rebuilding plans for depleted or overhunted stocks).

2.5.1.5 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 4.1.2

Half of the survey respondents felt that NAMMCO's performance concerning this criterion was "*Good*." Most of the rest of the responses were "*Satisfactory*" although one was "*Excellent*" and a few were "*Unsatisfactory*."

In written comments, one respondent noted that some issues were addressed relatively quickly (e.g., harbour porpoise in Norway) while other issues drag on (e.g., grey seal in the Faroe Islands.) Another respondent distinguished between the actions of NAMMCO and its members. This respondent noted that the Scientific Committee is good at spotting or responding to issues and providing advice to Council, but the Members do not always respond to requests for data. Specific issues mentioned included assessment of by-catch risk, grey and harbour seals in Iceland, and grey seals in the Faroe Islands. One respondent noted that it could take years for NAMMCO to provide advice and the Members to act on an issue.

2.5.1.6 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 4.1.2

[PRP18-RC57] The Panel **finds** that for some critical issues NAMMCO has been able to respond in a timely and effective manner. These include the development and adoption of various recommendations regarding hunting. However, as the Panel **noted** concerning Criteria 1.6.5 (*...adoption of conservation and management measures for previously unregulated takes*), in some cases it has taken more than a decade to respond to critical issues in part due to a lack of data or resources. The Panel **reiterates** that the NAMMCO Strategic Plan (**PRP18-RC4**) includes a process for prioritizing the stocks for which NAMMCO will improve data collection and prepare and recommend conservation and management measures.

2.5.1.7 INTRODUCTION TO DETAILED CRITERION 4.1.3 EXTENT TO WHICH NAMMCO HAS TRANSPARENT, CONSISTENT AND ADEQUATE ADVICE-MAKING PROCEDURES THAT FACILITATE THE ADOPTION BY PARTIES OF CONSERVATION AND MANAGEMENT MEASURES AND MEASURES RELATED TO HUNTING METHODS IN A TIMELY AND EFFECTIVE MANNER.

Recommendations for conservation and management measures are developed based upon advice from the Scientific Committee. Either of the Management Committees can recommend to the Council that it request such advice from the Scientific Committee. The Scientific Committee may also, on its initiative, provide advice to the Council in cases where the Scientific Committee has identified an issue of concern. The Scientific Committee organizes Working Groups to address specific issues related to its work.

Those Working Groups often include, and are often chaired by, relevant invited experts from non-NAMMCO countries. The Scientific Committee may also work with other relevant organizations on matters of common interest. These groups have included the International Council for Exploration of the Seas (ICES) (collaboration with ICES was called for in the NAMMCO Agreement) and the Joint Commission on Narwhal and Beluga (JCNB).

Observer participation in Scientific Committee and its subsidiary bodies is governed by the Scientific Committee's Rules of Procedure. As is the case with other committees in NAMMCO, observers are not permitted to attend meetings of the Scientific Committee and its subsidiary bodies unless the majority of the Committee has agreed to participation by the observer and the Council has given its approval. In practice, requests to attend are granted, as long as the request is for a scientist. See section 2.6.1.1 for additional discussion of observer participation in subsidiary body meetings.

The work of the Scientific Committee, and of all NAMMCO bodies, is conducted in English.

For all meetings of the Committee and subsidiary bodies, the draft agenda, Terms of Reference, when relevant, lists of participants and the meeting documents that will be published in the Annual Report should be made public and available on the NAMMCO website as soon as they are ready and circulated to the meeting participants. Working Groups are to report their findings in writing to the Scientific Committee. The report should include the views expressed on all substantive matters during the Working Group meeting. The report is considered confidential for at least four weeks after it has been circulated to the Scientific Committee and the Council. Once they are no longer confidential, they are published on the NAMMCO website.

The Scientific Committee also prepares a written report of meetings. The report should reflect all views expressed on substantive matters during the meeting. Approval of the report requires consensus among the Committee members. Once the report is provided to the Council, it is considered public.

The Management Committees are responsible for proposing conservation and management measures for stocks of marine mammals within their mandate to NAMMCO members. With respect to observer participation and pre-meeting preparation, the Management Committee rules are the same as those for the Scientific Committee. After each meeting, a Management Committee issues a report that includes any regulatory measures proposed by it, all decisions and recommendations adopted by it and references to all scientific information presented at the meeting. The content of the report is confidential before being released by the Council. Subsidiary bodies of a Management Committee provide written reports of their work to the relevant Management Committee and the Council. They generally remain confidential for four weeks (excluding July) after

which they become public and are published on the NAMMCO website unless a review of the report by the Management Committee is requested. In that case, the report remains confidential until it is released together with the report of the Management Committee.

The Committee on Hunting Methods (CHM) provides advice on hunting methods. The CHM must base its advice on the best available scientific findings, technological developments, and traditional knowledge. When it develops advice, the CHM must also consider hunter safety, animal welfare, efficiency of hunting gears and efficiency in utilization. Accredited observers are not permitted to attend meetings of the CHM unless a majority of the Committee and the Council approve. As described above, in Area 2 on hunting, much of the work of the CHM is conducted in workshops or expert group meetings. Participation in those groups extends beyond the membership of the CHM and, as appropriate, may include users, academics and others. Usually, Workshops have all been open to any interested expert, whereas Expert groups participation is 'by invitation only'. The preparation and release of reports on the work of the CHM and its subsidiary bodies are handled in the manner described above concerning the Scientific Committee and its subsidiary bodies.

In order to enhance transparency and openness, the Council determined, at its 25th meeting, that External Experts should participate in all meetings of committees' subsidiary bodies dealing with non-administrative questions. An external Expert is defined as a relevant expert who is not a member of the Parent Committee organising the meeting and not involved in the data collection, analysis, interpretation of the work to be discussed, regardless of nationality or institutional affiliation. The Council also decided that the participation of an External Expert may be funded by NAMMCO. Finally, the Council agreed that as a rule, each NAMMCO member country is responsible for bringing the information necessary to fulfil the terms of reference of any subsidiary body.

2.5.1.8 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 4.1.3

A substantial majority of the survey respondents indicated that they believed that NAMMCO was "*Excellent*" or "*Good*" with respect to having transparent, consistent and adequate advice-making procedures that facilitate the adoption by Parties of conservation and management measures and measures related to hunting methods in a timely and effective manner. Several people responded that NAMMCO's activities were "*Satisfactory*" and one reported that they were "*Unsatisfactory*." One commenter speculated that there is a language barrier while another found that concerning visible stocks things went well but not concerning the other stocks. Finally, one commenter noted that the while the system works the time from new knowledge to management actions is very long (years).

2.5.1.9 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 4.1.3

[PRP18-RC58] Generally, the Panel **believes** that the advice making procedures have not had an impact, either negative or positive, on the ability of the Parties to adopt conservation and management measures and measures related to hunting methods in a timely fashion. However, the Panel **notes** that throughout the conduct of its work it heard comments about language barriers created by the fact that NAMMCO works in English and **recommends** that the Commission consider whether there are viable ways to reduce or remove this barrier, including through the use of technology.

2.6 International cooperation

2.6.1 Transparency

AREA 5 – INTERNATIONAL COOPERATION	
General criteria	Detailed criteria
5.1 Transparency	5.1.1 Extent to which NAMMCO is operating in a transparent manner 5.1.2 Extent to which NAMMCO decisions and management advice, meeting reports, scientific advice upon which management advice is made, and other relevant materials are made publicly available in a timely fashion.

2.6.1.1 INTRODUCTION TO GENERAL CRITERION 5.1 "TRANSPARENCY"

This section considers detailed criteria 5.1.1 *"Extent to which NAMMCO is operating in a transparent manner"* and 5.1.2 *"Extent to which NAMMCO decisions and management advice, meeting reports, scientific advice upon which management advice is made, and other relevant materials are made publicly available in a timely fashion"*.

Transparency of intergovernmental organizations is the ability of the public to access information from them. It is a necessary condition for achieving credibility and accountability. The measure of an IGO's transparency needs to reflect the actual ability of other actors to access information as determined by the rules of what IGOs can release as well as by how officials implement the rules when they respond to queries²⁸⁴.

The Panel has used this definition together with the ability of other actors to participate as observers in meetings of the NAMMCO Council and its subsidiary bodies as the basis of its evaluation of NAMMCO's performance related to transparency.

Transparency is a fundamental part of NAMMCO's Communications and Outreach Strategy adopted by Council at NAMMCO 25 in April 2017.²⁸⁵ One of the functions of the Communication and Outreach Strategy is to further the visibility of the organization's activities and to support its transparency. Transparency is also a key part of the NAMMCO Communications Plan for 2017-2018.²⁸⁶

Attendance of observers at meetings of the Council and its subsidiary bodies is governed by Article 8²⁸⁷ of the Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic and further elaborated in the Rules of Procedure of the Council²⁸⁸, the Scientific Committee,²⁸⁹ the Management Committees,²⁹⁰ the Committee on hunting methods,²⁹¹ the Committee on inspection and observation²⁹² and the Finance and Administration Committee.²⁹³ Essentially:

- Council may invite non-contracting governments and inter-governmental and inter-parliamentary organizations, global and regional, to participate as observers to its meetings,

²⁸⁴ Alexandru Grigorescu 2007. Transparency of Intergovernmental Organizations: The Roles of Member States, International Bureaucracies and Nongovernmental Organizations. *International Studies Quarterly* (2007) 51, 625-648.

²⁸⁵ [NAMMCO communications and outreach strategy](#).

²⁸⁶ [NAMMCO Communications Plan 1917 – 1918](#).

²⁸⁷ Article 8 - The Council may agree to admit observers to meetings of the Commission when such admission is consistent with the objective set out in Article 2 of the NAMMCO Agreement.

²⁸⁸ [Rules of Procedures for NAMMCO Council – revised 2017](#).

²⁸⁹ [Rules of procedure for the Scientific Committee](#).

²⁹⁰ [Rules of procedure for NAMMCO management committees](#).

²⁹¹ [Rules of procedure for the hunting methods committee](#).

²⁹² <https://nammco.no/wp-content/uploads/2017/06/rop-committee-on-inspection-and-observation-revised-2017.pdf>

²⁹³ [Rules of Procedure for the Finance and Administration Committee](#).

- accredited observers may attend meetings of the Council,
- attendance of accredited observers shall only be permitted at meetings of committees and subsidiary bodies of the Council when decided by the committee/subsidiary body and approved by the Council and,
- attendance of observers shall not be permitted at the meetings of the Finance and Administration Committee.

Since its inaugural meeting in 1992, accredited observers to meetings of the Council and its subsidiary bodies (except the Finance and Administration Committee) have included representatives of the Governments of Canada, Japan and Russia, and Inuit Territories, the foreign ministry of Denmark, the Nordic Council of Ministers, the International Whaling Commission, regional fisheries management organizations (NAFO, NEAFC, SEAFO), Hunters' organizations from NAMMCO member and non-member countries, indigenous organisation and other NGOs supporting the sustainable use of marine resources²⁹⁴.

In 2007, the World Society for the Protection of Animals (WSPA) requested observer status to attend the meeting of the NAMMCO Council. Given WSPA's specific interest in the technical aspects of animal welfare and hunting techniques, the NAMMCO Council decided that WSPA should be included on the invitation list to attend, as full participant, any future specialist workshops on hunting methods which are open for general participation (Letter from the NAMMCO General Secretary to WSPA representative, 29/08/2007). While the CHM did convene subsequent meetings on the technical aspects of animal welfare and hunting techniques, WSPA was not invited to participate as the meetings were invitation only and not open for general participation (Letter from the NAMMCO General Secretary to WSPA representative, 31/08/2011). Always in 2007, a request from the Norwegian Society for the Protection of Animals (NSPA) to attend the meeting of the Council as an observer was also rejected²⁹⁵. The Council further decided that it was inappropriate to offer observer admission to Council meetings since technical matters relating to hunting and humane killing are not generally discussed at Council meetings (Letter from the NAMMCO General Secretary to NSPA Head of Secretariat, 02/07/2007).

With respect to reports and documents the rules of procedure for the Council specify that *"for all meetings of the Commission (except the meetings of the Finance and Administration Committee) the terms of reference when relevant, draft agenda, list of participants and meeting documents that will be published in the Annual Report should be made public and available on the NAMMCO website as soon as they are ready and circulated to the meeting participants"*²⁹⁶.

The Panel did not have any examples of how the Secretariat responded to requests for information. However, it noted that there are no rules or guidelines for the Secretariat to follow.

During the course of its work, the Panel became aware that using Google to search for documents on the NAMMCO website provided these bypassing the need for use of the password/s. The same was the case using the search function on the NAMMCO website as opposed to following a path through the site. Effectively this means that all of the documents on the NAMMCO website were publicly available for a period of time. The Panel

²⁹⁴ See list of participants in meeting reports <https://nammco.no/library/>

²⁹⁵ Aug. 2007 WSPA request to NAMMCO for observer status and reply Aug. 29, 2007 response from NAMMCO General Secretary.

²⁹⁶ Rules of Procedures for NAMMCO Council – revised 2017.

informed the NAMMCO Secretariat of this situation, and the Secretariat addressed it in a timely fashion.

As a result of recent changes to Rules of Procedure and working methods²⁹⁷, NAMMCO decisions and management advice, meeting reports, scientific advice upon which management advice is made, and other relevant materials are made publicly available according to specific deadlines specified by their Terms of Reference or as determined by their sequence with the Council meeting (e.g. Management Committees). Working Groups of the subsidiary bodies need to submit their report to the parent Committee two weeks after the conclusion of their meetings. These reports *'are confidential until four weeks (excluding July) after being circulated to the Scientific Committee and the Council'*. Thereafter they are made public and available on the NAMMCO website. Reports of all subsidiary bodies are submitted to the Council within two weeks (or less, in case of meetings prior the Council) after the conclusion of their meetings. The Council report is available for the public four weeks after the meeting.

2.6.1.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON GENERAL CRITERION 5.1

Answers from Survey respondents and interviewees to Q40 and Q41 are included in Appendix 7.

"Extent to which NAMMCO is operating in a transparent manner", was Q40 of the Panel's multiple-choice questionnaire, which generated the following: Out of a total of 34 responses, nine rated NAMMCO's transparency as *"Excellent"*, 20 rated it as *"Good"* and five rated it as *"Satisfactory"*.

Question Q41 *"Extent to which NAMMCO decisions and management advice, meeting reports, scientific advice is made, and other relevant materials are made publically available in a timely fashion"* is also related to the issue of transparency. Of 35 responses, 19, were *"Good"*, ten were *"Excellent"*, five were *"Satisfactory"* and one *"Unsatisfactory"*. The latter explained their choice as follow: *"it may not be a priority for NAMMCO to communicate these results to a wider global/regional audience, however if this is a priority then effective means for communication do not seem to be in place"*. The issue of transparency did not arise in any of the interviews conducted by the Panel except for those with representatives of hunters' organizations who expressed satisfaction with having participated as observers to meetings of the Council and its subsidiary bodies.

2.6.1.3 PANEL'S VIEWS AND RECOMMENDATIONS ON GENERAL CRITERION 5.1

[PRP18-RC59] The Panel **is of the view** that participation of observers at meetings of the Council and its subsidiary bodies is an important part of NAMMCO's transparency, accountability and credibility.

[PRP18-RC60] With regard to documents, the Panel **is aware** that there is a considerable volume of material related to the functioning of the organization, including meeting documents, on NAMMCO's website. Much of this information is however password protected and for some material, including documents prepared by the Secretariat for use by the Panel, two passwords are required. The Panel **is of the view** that much, if not all of this material does not require access protection and recommends that this matter be reviewed with a view to increasing transparency. As part of this review the Council may wish to consider aligning its policy related to access protection to its documents with the Norwegian standard as to what would and would not be provided in response to a request

²⁹⁷ PRP2018_41

under its "Freedom of Information Act". The Panel **recommends** that the results of such a review be made public.

[PRP18-RC61] The Panel also **notes** that there are other issues related to NAMMCO's use of password protection for some of its documents including the fact that there are no rules or guidelines that describe who and under what conditions passwords can be obtained as well as the lack of rules or guidelines related to how documents are determined to be publicly available or password protected. The Panel **recommends** that these issues be specifically addressed as part of the review recommended in the previous paragraph.

A need for greater transparency was also addressed in sections 2.2.6.3 (PRP18-RC32), 2.3.4.2 (PRP18-RC47), 2.5.1.3 (PRP18-RC55) and 2.8.2.9 (PRP18-RC94).

[PRP18-RC62] Given the above comments, the Panel **considers** that NAMMCO's transparency requires improvements; this could include a translation of key documents in English (e.g., relevant legislation), which should be available on the website.

[PRP18-RC63] In terms of availability of reports, the Panel **notes** that NAMMCO procedures are in line with those of other IGOs and, therefore, acceptable.

2.6.2 Relationship with non-NAMMCO Parties

AREA 5 – INTERNATIONAL COOPERATION	
<i>General criteria</i>	<i>Detailed criteria</i>
5.2 Relationship with non-NAMMCO Parties	<p>5.2.1 Extent to which non-NAMMCO Parties have undertaken hunting activities in the NAMMCO Area.</p> <p>5.2.2 Extent to which NAMMCO facilitates cooperation with non-NAMMCO Parties, including encouraging regional non-NAMMCO Parties to become Parties or to implement NAMMCO conservation and management measures voluntarily.</p> <p>5.2.3 Extent to which NAMMCO provides for action in accordance with international law and Agreement against non-NAMMCO Parties undermining the use of marine mammals, as well as measures to deter such activities.</p>

2.6.2.1 INTRODUCTION TO DETAILED CRITERION 5.2.1 "EXTENT TO WHICH NON-NAMMCO PARTIES HAVE UNDERTAKEN HUNTING ACTIVITIES IN THE NAMMCO AREA"

According to the text of the Agreement, the area of competence of NAMMCO is the North Atlantic Ocean, without any limits or further description. Representatives from Member Countries (Faroe Islands, Greenland, Iceland, and Norway) interpret NAMMCO's area of competence as the Exclusive Economic Zones (EEZs) of current Member Countries (see section 2.6.2.2). Theoretically, however, the NAMMCO area of competence could be the entire North Atlantic down to the equator line. See also section 2.2.1.

The evaluation of this criterion, therefore, changes depending on the area considered. Three options are possible: (a) the EEZs of current NAMMCO Member Countries; (b) the EEZs of current NAMMCO Member Countries and the adjacent international waters; (c) the entire North Atlantic Ocean (including part of the Arctic Ocean, Queen Victoria Sea, Barents Sea, Norwegian Sea, Baltic Sea, North Sea, Labrador Sea, Sargasso Sea, Caribbean Sea²⁹⁸).

²⁹⁸ <http://www.fao.org/fishery/rfb/nammco/en>

Since the creation of NAMMCO, known hunts on marine mammals in the North Atlantic are those conducted in Canada on pinnipeds and cetaceans (commercial hunts and Inuit), in St Vincent and the Grenadines on humpback whales (by Bequia²⁹⁹) and in the Russian Federation on belugas and pinnipeds.

2.6.2.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 5.2.1

Criterion 5.2.1 was reformulated as question (Q42): "*Are you aware of hunting activities by non-NAMMCO Parties undertaken in the NAMMCO Area? If yes, please, specify*". See Annex X for full details. Responses obtained reflect different interpretations around the NAMMCO's area of competence, with respondents not fully aware of which hunting activities are carried out by non-NAMMCO Countries in the North Atlantic area.

From interviews, it seems clear that representatives from Member Countries (Faroe Islands, Greenland, Iceland, and Norway) consider NAMMCO's area only that within the EEZ of each of the current Members.

2.6.2.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 5.2.1

[PRP18-RC64] The Panel **notes** that depending on the interpretation on the actual area of competence of NAMMCO, the response to the question on whether non-NAMMCO Parties have undertaken or still undertakes hunting activities in the NAMMCO Area may vary from "no" to "yes". In any case, these hunting activities are regulated and managed under domestic laws or based on decisions made by the IWC.

2.6.2.4 INTRODUCTION TO DETAILED CRITERION 5.2.2 "*EXTENT TO WHICH NAMMCO FACILITATES COOPERATION WITH NON-NAMMCO PARTIES, INCLUDING ENCOURAGING REGIONAL NON-NAMMCO PARTIES TO BECOME PARTIES OR TO IMPLEMENT NAMMCO CONSERVATION AND MANAGEMENT MEASURES VOLUNTARILY*"

See sections 2.1.1 for additional information on this issue.

NAMMCO has a number of Governments observing its meetings³⁰⁰. Canada, Denmark, Japan and the Russian Federation have observed NAMMCO Council meetings since the first NAMMCO meeting in 1992. Canada and Japan have attended all of the meetings. Two other countries, St. Lucia (1998, 1999, 2006) and Namibia (1996), have observed some meetings. In addition, since the beginning, Canada and Russian Federation have had standing invitations to join NAMMCO. Formal and informal discussions have occurred periodically with Canada, the latest being in 2018. The Russian Federation has been invited to join NAMMCO on three occasions 1996, 1997 and 1999. NAMMCO has never received an official reply to these invitations. Both Canada and the Russian Federation were invited to join with the condition that the payment of membership contributions to NAMMCO would be on a voluntary basis for the first 5 years. During this period, Member Countries would negotiate new fees, in relation to the needs of the organisation and its administration.

2.6.2.5 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 5.2.2

Q43 was answered by 32 respondents, the majority of which were satisfied by the extent to which NAMMCO facilitates cooperation with non-NAMMCO Parties and encourages their accession. This included, besides the Observer status, their participation to Working Groups of the Scientific Committee and of the Hunting Committee, and to research programmes (e.g. T-NASS 2007). There is a general perception that efforts made by NAMMCO to

²⁹⁹ <https://iwc.int/bequia>

³⁰⁰ PRP2018_47

encourage accession are good and have been increasing in recent years, but they are generally ignored and, perhaps, a new strategy is necessary.

Among the four indicating that efforts were “unsatisfactory”, one specified that there have not been new members since NAMMCO’s inception.

2.6.2.6 PANEL’S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 5.2.2

[PRP18-RC65] The Panel **believes** that NAMMCO has made a reasonable effort to facilitate the cooperation with non-NAMMCO parties, but that some renewed effort could be made to increase the number of adhering countries. At a minimum, NAMMCO should aim to persuade those countries that are conducting hunts in the North Atlantic (i.e., Canada and St Vincent and the Grenadines) and the Russian Federation, which hunts in the adjacent Arctic region and that share some stocks (e.g. bearded seals, harp seals, ringed seals, beluga, etc.). The Panel **notes** that increasing the number of Member Countries could also increase the budget of the organisation, possibly allowing important resources for priority activities.

2.6.2.7 INTRODUCTION TO DETAILED CRITERION 5.2.3 “EXTENT TO WHICH NAMMCO PROVIDES FOR ACTION IN ACCORDANCE WITH INTERNATIONAL LAW AND AGREEMENT AGAINST NON-NAMMCO PARTIES UNDERMINING THE USE OF MARINE MAMMALS, AS WELL AS MEASURES TO DETER SUCH ACTIVITIES”

The Panel was unable to identify any formal actions or measures provided for in the Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic or by international law or multilateral-agreement that NAMMCO can take against non-NAMMCO parties that it believes are undermining its efforts to ensure the sustainable management of marine mammals in the North Atlantic.

However, in response to efforts to stop or discourage the commercial harvest of marine mammals, NAMMCO has taken actions that highlight the members’ views about the sustainable use of marine resources. Following a Ministerial Meeting in 2012, the Council created a Working Group to develop proposed terms of reference for a conference on how marine mammals could contribute to food security³⁰¹. A Council member suggested that this conference could also examine the value of consuming food from marine mammals.³⁰² Funding for the work of the planning group was allocated in 2013³⁰³ and at the annual meeting in 2014, the Working Group described the intended path forward. Its approach included two main objectives, the production of a background document based on a review of existing material on marine mammals and food security, and communicating a message about the link between food security, and the consumption of marine mammals.³⁰⁴ The Working Group also decided that the background document should be structured so that it was easily updated and asked the Secretariat to provide the first draft. However, the Working Group ultimately decided not to schedule a Conference.³⁰⁵

The project was further discussed at NAMMCO 24 where, among other things, it was noted that “[t]he goal of the project was to normalize marine mammals as food resources”³⁰⁶. In order to better reflect this idea, the name of the project was changed from “*marine mammals and food security*” to “*marine mammals as a food resource*”.³⁰⁷ Next steps

³⁰¹ NAMMCO Annual Report 2012, p. 19.

³⁰² NAMMCO Annual Report 2012, p. 19.

³⁰³ NAMMCO Annual Report 2013, p. 10.

³⁰⁴ NAMMCO Annual Report 2014, p. 19.

³⁰⁵ NAMMCO Annual Report 2014, p. 19.

³⁰⁶ NAMMCO Annual Report 2015, p. 22.

³⁰⁷ NAMMCO Annual Report 2015, p. 22.

included updating the document based on additional comments received and preparation of a communications and outreach strategy by the Secretariat in consultation with a communications expert³⁰⁸. The background document was finalized and posted on the NAMMCO website with the title "Marine Mammals: a Multifaceted Resource" and a communication and outreach strategy was developed.³⁰⁹ Outreach has included the preparation of a leaflet, the convening of a breakout session at the 2016 and 2017 Arctic Circle Assembly, a presentation at the World Seafood Congress in 2017 on the coherence between sealing and whaling and blue growth, posting of a translated version of a portion of the background document on the Greenland Ministry of Fishing and Hunting and Agriculture website, and circulation of a summary version of the background document with a press released announcing the 25th meeting of NAMMCO.³¹⁰

NAMMCO has also lobbied for the repeal of the EU trade ban on seal products. In support of this effort, NAMMCO has articulated a number of concerns that its members have with the ban including concerns about its consistency with international principles regarding the conservation and management of marine resources. It also highlighted the economic impact on Inuit and other communities dependent upon abundant seal stocks across the North Atlantic.³¹¹ In addition, the NAMMCO Secretariat has promoted discussions about the role that the harvest of marine mammals has in the "blue economy."³¹²

2.6.2.8 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 5.2.3

A majority of the survey respondents (15 out of 22) expressed the view that NAMMCO's response to non-NAMMCO Parties that are undermining the use of marine mammals has been "Satisfactory", "Good" or "Excellent" although a third of the survey respondents described those efforts as "unsatisfactory" or "None" (see Annex 7).

In their comments, one survey respondent noted that NAMMCO advice had been helpful for responding to the EU sealskin ban while another indicated that NAMMCO action might be useful in connection with addressing bycatch of shared stocks by the EU. A third respondent commented that this issue has never come up. One interviewee noted that the way in which NAMMCO has focused on the sealskin issue has been helpful.

2.6.2.9 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 5.2.3

[PRP18-RC66] The Panel **believes** that there are no formal actions that NAMMCO can take under international law against non-NAMMCO members that are undermining the use of marine mammals. However, the Panel **notes** that NAMMCO has found other ways to try to address these issues, including its outreach and lobbying efforts.

[PRP18-RC67] Given the nature of the NAMMCO Agreement, the Panel **also believes** that, for future performance reviews, this specific criterion should be either revised or dropped.

³⁰⁸ NAMMCO Annual Report 2015, p. 22.

³⁰⁹ NAMMCO Annual Report 2016, p. 20.

³¹⁰ NAMMCO Annual Report 2016, p. 20.

³¹¹ NAMMCO Annual Report 2009, p. 36; NAMMCO Annual Report 2010, p. 39; NAMMCO Annual Report 2011, p. 37; NAMMCO Annual Report 2013, p. 33.

³¹² NAMMCO Annual Report 2016, p. 21; NAMMCO Annual Report 2017, p. 17-18.

2.6.3 Cooperation with other international organizations

AREA 5 – INTERNATIONAL COOPERATION	
<i>General criteria</i>	<i>Detailed criteria</i>
5.3 Cooperation with other international organizations	5.3.1 Extent to which NAMMCO cooperates with other marine mammal management organisations and other international organisations dealing with marine mammal conservation.

2.6.3.1 INTRODUCTION TO DETAILED CRITERION 5.3.1 "EXTENT TO WHICH NAMMCO COOPERATES WITH OTHER MARINE MAMMAL MANAGEMENT ORGANISATIONS AND OTHER INTERNATIONAL ORGANISATIONS DEALING WITH MARINE MAMMAL CONSERVATION"

One of the main objectives of NAMMCO is to strengthen the scientific and management cooperation on marine mammals within its region of competence. Accordingly and as reiterated at the 24th Meeting of the Council, NAMMCO has been and is still pursuing cooperation with the Arctic Council, the International Council for the Exploration of the Sea (ICES), the International Whaling Commission (IWC), the Convention for the Protection of the Marine Environment of the North-East Atlantic (the 'OSPAR Convention'), the Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) and other international instruments that are relevant to NAMMCO objectives³¹³. Accordingly, NAMMCO entertains relationships with a number of relevant regional and global Inter-governmental organizations (see Table 6 below). Some of these relationships began in the early 1990s and have evolved into full or partial scientific cooperation. With other organizations (i.e. ASCOBANS) differences in views about hunting marine mammals have prevented any cooperation.³¹⁴

In general, apart from the reciprocal participation as "Observer" at meetings, there is not much actual scientific collaboration with Regional Fishery Management Organizations (RFMOs). However, the Secretariat believes that RFMOs could be a source of useful information, for example, on bycatch and ship-strikes.³¹⁵ See Table 6 for a summary of NAMMCO participation in other IGO meetings as an Observer.

The appointments seem mostly on an *ad hoc basis*, except for the North Atlantic Regional Fisheries Management Organizations (RFMOs) (see below). The appointment, and by the same token the representation, has been and is more systematic for the North Atlantic RFMOs following the practice established and formal agreement reached at Council 17 in 2008:

12. EXTERNAL RELATIONS

*[...] For the guidance of the Secretariat in responding to invitations from other organisations, the Council agreed to delegate NAMMCO observers among member countries as follows: Norway would represent NAMMCO at relevant meetings of NEAFC, Iceland at relevant meetings of NAFO, and the Faroe Islands at relevant meetings of NASCO.*³¹⁶

At Council 19, a Member Country proposed that NAMMCO seek observer status to SEAFO, which was granted. Since then, i.e., since the 7th SEAFO annual meeting, Norway has been NAMMCO observer to SEAFO annual meeting. Details of these observation activities can be found in documents "*NAMMCO Secretariat participation/cooperation with other*

³¹³ NAMMCO Annual Report 2015, item 12.3, p. 25.

³¹⁴ PRP2018_34.

³¹⁵ PRP2018_34.

³¹⁶ NAMMCO Annual Report 2007-2008, Report of CN meeting 17, Agenda point 12. External Relations, p. 26.

organizations including Regional Fishery Body Secretariats Network, FAO, OSPAR, NEAFC and others" and "List of organizations to which NAMMCO members are appointed as observers on behalf of NAMMCO".³¹⁷

Table 6 - Overview of IGO's NAMMCO has an observer relation with (alphabetic order; prepared by the Secretariat)

IGO	Status of affiliation	NAMMCO meetings			Meetings of other IGOs	
	Formal reciprocal observer status (OS)	IGO representative attending NAMMCO Council	IGO represented by a NAMMCO MC at Council	IGO observing to NAMMCO Council	NAMMCO Secretariat attending other IGOs meeting	NAMMCO MC observing other IGOs meetings
Arctic Council// Ministerials	1994*	2012			200, 2002, 2010	2011 GL
AC // SAO					1999-03, 2007-08, 2011-12	2004 IS
AC // EG-EBM, IEA WS, EAM Conf					2012, 2016	2014 NO
AC // AMAP WG						
AC // PAME WG					2012, 2015	
AC // CAAF WG & CBMP					2015-18	
AC // SDWG					1999-00, 2016	
CMS				1996-CL		COP 2008 NO
ASCOBANS // MOP		1996-CL		1995 1997 DK	1994, 2012-16	1997 NO
ASCOBANS // AC					2005-06, 2012-13, 2015-17	1996, 2001 NO
CITES	1994				1994, 1997, 2000	2002 GL, 2007 IS
East Caribbean Commission (ECCO)		2000, 2003				
FAO // GS	**				2014	
FAO // CIEAF					2006	2007 IS
RFB/RSN					2001 2007 2009 2014 2018	
FIRMS					2011	
COFI					2007, 2014	
NARFMOs					2001, 2004-5, 2005, 2007, 2009	
ICES+ ICES WG meetings	1992	1992, 1993ja, 1996, 2005, 2011, 2012	1993ju, 1999		2002, 2004-05, 2009-10, 2012	
IUCN					1994, 1996	
IWC // Commission	1992	2016-2018	2004	1992 GL, 1993-03 DK, 2005-09 DK, 2009-15 JP	1994-08, 2014-18	2010-12 NO
IWC // SC					2002-04, 2006-10, 2014-15	2005, 2011-12 NO; 2013, 2016-18 IS
IWC // WS					2014-15	
NAFO	From start		1993 NO, onwards			IS: 1995 onwards (but not 96)
NASCO	2001					FO: 2001 onwards
NCM		1992, 1996, 1997			2010	
NCM - Nordist network					2006-2013, 2017***	
NEAFC	From start		1996 NO, onwards			NO: 1996 onwards -- except IS: 1997 (Extraord. Meeting), GL: 1999
NORA		1996, 1997				
Nordic Council		2004				
OSPAR	2003				2004	2004 NO
Collective Arrangement					2018	
RFB/RSN - biannual					2001 onwards	
SEAFO	2011		2015 NO, onwards			NO: 2010 onwards
UNEP Marine Mammal Action Plan					****	

Key: * From 1994 ad hoc observer status granted at meeting OS applied 1997, granted 2000 Ministerial Barrow. ** Applied 1992/3-no formal answer but informal exchange of info + member of RFB/RSN. ***no meetings in 2015-2016. **** No meetings but cooperation on text describing NAMMCO activities.

³¹⁷ PRP2018_35 and PRP2018_37.

2.6.3.1.1 FAO Regional Fishery Body Secretariats Network (RSN)

There is no formal agreement or MoU between NAMMCO and FAO.

Relations with the FAO Committee on Fisheries (COFI) - the global fishery organization - are not a high priority for NAMMCO, although the importance of appointing a NAMMCO observer to participate in COFI meetings was reiterated in 2012³¹⁸, when it was noted that FAO was one of the first international organizations originally identified by NAMMCO for the exchange of observers³¹⁹.

The participation of the NAMMCO Secretariat in the FAO Regional Fishery Body Secretariats Network (RSN) allows NAMMCO to keep abreast of the activities going on in the different organizations, related to both scientific activities and issues relevant to the management of the secretariats themselves.

However, following the workshop on bycatch organised by the FAO in March 2018, FAO and NAMMCO have started holding skype meetings on the bycatch issues in fall 2018, involving both staff of the Fishing Operations and Technology Branch (FIAO) and of the Fisheries and Aquaculture Information and Statistics Branch (FIAS), which deals with the Fishery and Resources Monitoring System (FIRMS).

2.6.3.1.2 Canada/Greenland Joint Commission on Conservation and Management of Narwhal and Beluga (JCNB)

There is no formal agreement between NAMMCO and the Canada/Greenland Joint Commission on Conservation and Management of Narwhal and Beluga (JCNB). However, after a difficult beginning, cooperation with JCNB started in 2001 through the creation of a Joint Scientific Working Group, for which NAMMCO coordinates logistics. Recent cooperation between the organizations at the scientific level has been described by the current General Secretary of NAMMCO as 'unproblematic' and 'mutually beneficial'³²⁰.

2.6.3.1.3 International Council for the Exploration of the Sea (ICES)

NAMMCO and the International Council for the Exploration of the Sea (ICES) signed a Letter of Agreement in 2011 to: (a) keep each other informed on activities of mutual interest, (b) facilitate the exchange of relevant data (such as on marine mammal abundance, distribution and utilisation), (c) facilitate the reciprocal exchange of observers at relevant meetings, (d) coordinate programmes and avoid unnecessary duplication in the study of marine mammals and their role in the marine ecosystems of the North Atlantic and its adjacent seas.

However, the scientific cooperation with the ICES started right from the beginning and is called for by the NAMMCO Agreement³²¹. It developed over time in four areas: (a) participation of NAMMCO scientists in the ICES Study Group on long-finned pilot whale (1991 -1996) (SGLFPW); (b) NAMMCO Council's requests for advice to ICES (2014; previous advice was asked directly by Member Countries) and consequent formalisation (2015) of the Joint ICES/NAFO/NAMMCO Working Group on harp and hooded seals; (c) ICES Working Group on By-Catch (WGBYC); and (d) sharing of T-NASS and NASS 2015 results on population estimates with the ICES Working Group on Marine Mammal Ecology (WGMME)³²². In particular, the cooperation on bycatch started in 2009 after bycatch was transferred from the remit of the Management Committees to the remit of the Scientific

³¹⁸ NAMMCO Annual Report 2011.

³¹⁹ PRP2018_34.

³²⁰ PRP2018_34.

³²¹ NAMMCO Agreement, Article 4.2(d).

³²² PRP2018_34.

Committee in 2007³²³. At the initiative of NAMMCO, in 2010, NAMMCO and ICES organized a Joint Workshop on Observation Schemes for Bycatch of Mammals and Birds (WKOSBOMB). Moreover, chairs of the ICES WGBYC are invited to the NAMMCO BYCWG as scientific Experts and plans are being made for other common initiatives³²⁴.

2.6.3.1.4 Arctic Council (AC) and its subsidiary bodies

NAMMCO has had an *ad hoc* observer status with the Arctic Council between 1994 and 1997. In 1997 it applied for a permanent observer status, which was granted in 2000 at the Ministerial Meeting in Barrow, Alaska, U.S.

There is no formal agreement or Memorandum of Understanding (MoU) between NAMMCO and the Arctic Council (AC). However, NAMMCO cooperates with the Conservation of Arctic Flora and Fauna (CAFF), which is the biodiversity working group of the AC and consists of National Representatives of the eight Arctic Council Member States, representatives of Indigenous Peoples' organizations, and Arctic Council observer countries and organizations. NAMMCO became a member of the Circumpolar Biodiversity Monitoring Program (CBMP) Marine Expert Network on marine mammals in 2015 and participated in the CBMP Marine Annual meetings in 2015, 2016 and 2017. It also contributed to the drafting of the State of the Arctic Marine Biodiversity Report (SAMBR), a major CAFF undertaking (reference NAMMCO Annual Report – Report of the 26th meeting of the NAMMCO Council³²⁵). The CAFF Secretary joined the steering group of the Global Review of Monodontids (GROM) workshop, which was held in 2017. The NAMMCO Secretariat was also a member of the Program Advisory Committee to the 2nd Arctic Biodiversity Congress, held in October 2018³²⁶. NAMMCO's perception is that re-enforcing links with the Arctic Council and its subsidiary bodies offers the opportunity to make its work and success stories more widely known and to reaffirm the rights of coastal communities to use all marine living resources³²⁷. It also allows NAMMCO and its partners to avoid some duplication of work and to make more efficient use of human resources, as the experts involved are the same in both fora.

2.6.3.1.5 International Whaling Commission (IWC)

There is no formal agreement or MoU between NAMMCO and the International Whaling Commission (IWC) and the relationship is complex. However, there has been a reciprocal observer status between North Atlantic Commission (NAC) and IWC in 1991 and 1992 (IWC 43 and 44), and this practice has since continued without formalisation. An unofficial cooperation has been carried out using the practice of inviting relevant scientists to NAMMCO scientific meetings or sending scientists to IWC meetings (e.g. Scientific Committee, RMP and AWMP-related discussions, hunting methods, etc.). Since 2002, the NAMMCO Scientific Secretary has regularly participated in the meeting of the IWC Scientific Committee and one of the scientist attending has given a report of the relevant topics discussed at the NAMMCO Scientific Committee. The NAMMCO and IWC Secretaries are regularly invited to observe Council and Commission meetings, respectively. Renowned IWC scientists have been involved in NAMMCO activities, such as the Large Whale Management Working Group, the Survey Planning Working Group, the Abundance Estimate Working Group, and the harbour porpoise Working Group. Finally, one workshop has been organised jointly on the North Atlantic Fin whales assessment (2006) and, in 2018, IWC and NAMMCO

³²³ NAMMCO Annual Report 2007.

³²⁴ PRP2018_34.

³²⁵ <https://nammco.no/wp-content/uploads/2017/09/nammco-annual-report-2017.pdf>

³²⁶ <https://nammco.no/wp-content/uploads/2017/09/nammco-annual-report-2017.pdf>

³²⁷ PRP2018_34.

agreed to allow the Abundance Estimate Working Group chairs (or convenors) from the two organizations to reciprocally observe meetings of these working groups and that relevant documents meetings be shared. A Cooperation at the Secretariat level started in fall 2018 on the by-catch issue.

2.6.3.1.6 Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS)

There is no formal agreement or MoU between NAMMCO and ASCOBANS.

The relationship with the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS) is the most difficult relationship that NAMMCO has with another organization. Despite several attempts by NAMMCO Council and Secretariat since 1996, there has not been any scientific cooperation with ASCOBANS, because of the unwillingness of ASCOBANS Parties. Even very specific scientific activities limited to certain uncontroversial topics (e.g. bycatch or population status assessments) have been impossible³²⁸. This situation has been perceived internally as very frustrating, especially considering that these two organisations share a former General Secretary (i.e., Christina Lockyer) and that the present General Secretary has worked as coordinator of the ASCOBANS North Sea Action Plan for Harbour Porpoises. In the few last years, NAMMCO has regularly attended both the meetings of the Parties and of the Advisory Committee, although ASCOBANS never reciprocated. In 2017, NAMMCO Council "*noted with regrets the refusal of ASCOBANS to cooperate with NAMMCO on scientific matters regarding shared stocks of an iconic species [- the harbour porpoise -] for ASCOBANS, which clearly is subjected to significant levels of anthropogenic impacts, both direct and indirect removals, pollution and other anthropogenic disturbances*".

2.6.3.1.6 OSPAR Commission (ASCOBANS)

NAMMCO was granted observer status in 2003. There is no formal agreement or MoU between NAMMCO and OSPAR, which is a Commission is tasked with developing programs and measures for the control of human activities that have actual or potential adverse effects on specific species, communities, habitats or ecological processes in the North-East Atlantic Ocean. OSPAR Annex V, on "fisheries measures", addresses marine mammals. OSPAR conducts assessments on marine mammal populations including identifying threats to the populations and considers marine mammals in the context of the ecosystem approach to management of the North-East Atlantic. It also advises the EU about the implementation of the EU Marine Strategy Framework Directive (MSFD).

NAMMCO has no formal cooperation with OSPAR, but there are ongoing informal discussions on how NAMMCO could provide information in the preparation of forthcoming Quality Status Report (QSR) for the Northeast Atlantic. NAMMCO and OSPAR are also presently discussing the signing of a MOU between the two organisations.

2.6.3.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 5.3.1

Almost all respondents (34 out of 35) to the survey were satisfied by the extent to which NAMMCO cooperates with other marine mammal management organizations and other international organisations, which are dealing with marine mammal conservation. The comment to the "unsatisfactory" score was "*The extent to which NAMMCO considers measures of relevance taken in other regional/global organisations in relation to their own decision making on management and measures could be further clarified*". Additional comments by other respondents showed some need for improvement. For example: "*I was*

³²⁸ PRP2018_34.

definitely very disappointed that NAMMCO was unwilling to co-sponsor the Global Review of Monodontids with the IWC – this made me feel tempted to tick ‘unsatisfactory’ – but generally I think there’s more cooperation than not”; “NAMMCO makes a huge effort in engaging in cooperation with other bodies, although this is not always well received”.

The NAMMCO Secretariat responded to specific questions on how cooperation with IGOs is helpful for achieving NAMMCO objectives. In summary, the Secretariat believes that participation/cooperation is helpful for achieving NAMMCO objectives in several ways: (a) it represents an outing opportunity for NAMMCO to present its work and status results and therefore get it recognized, enhancing its credibility; (b) it represents an opportunity for NAMMCO to promote its four pillars (sustainable utilization of living natural resources, recognition of the role of science as the basis for sound and rational management, ecosystem approach to management, and responsibility and transparency), (c) it represents a source of information and collaboration, for informing the work of NAMMCO and in particular the assessment of the marine mammal stocks. These relationships also help build an ecosystem perspective, as other organization usually focus on complementary issues, like other levels of the food chain, pollution, climate change, etc. In recent times, NAMMCO established that when a member of the Secretariat represents NAMMCO at meetings or conferences she or he has to offer to make a presentation on a relevant topic.

2.6.3.3 PANEL’S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 5.3.1

[PRP18-RC68] The Panel **is of the view** that NAMMCO’s effort to cooperate with other relevant international organizations is important. The Panel **recommends** that such efforts be continued and regularly reviewed on an individual basis to determine whether they contribute to NAMMCO’s efforts to meet its strategic goals. The Panel **recommends** that NAMMCO considers entering into formal arrangements on relevant scientific and technical matters. Cooperation with other relevant international organization should also be part of the NAMMCO Strategic Plan.

[PRP18-RC69] As with activities of the Scientific Committee, the Panel **recommends** that postponement or reductions of efforts to cooperate with other relevant organizations should not be used as an ongoing solution to budget shortfalls.

[PRP18-RC70] The Panel **notes** that ASCOBANS decided not to engage in any cooperation with NAMMCO on the organization of a harbour porpoise symposium in response to the invitation from the Norwegian Institute of Marine Research (IMR) and NAMMCO³²⁹. It is the Panel **understanding** that ASCOBANS’ decision not to work cooperatively with NAMMCO was not based on a concern about NAMMCO’s scientific capability, but rather based on the position of some members in ASCOBANS about the hunting of marine mammals.

³²⁹ <https://nammco.no/wp-content/uploads/2017/09/nammco-annual-report-2017.pdf>

2.7 Financial and administrative issues

2.7.1 Availability of resources for activities

See also information on criterion 6.2.1.

AREA 6 – FINANCIAL AND ADMINISTRATIVE ISSUES	
<i>General criteria</i>	<i>Detailed criteria</i>
6.1 Availability of resources for activities	6.1.1 Extent to which financial and other resources are made available to achieve the aims of NAMMCO and to implement NAMMCO's decisions. 6.1.2 Extent to which the schedule and organization of the meetings could be improved.

2.7.1.1 INTRODUCTION TO DETAILED CRITERION 6.1.1 "EXTENT TO WHICH FINANCIAL AND OTHER RESOURCES ARE MADE AVAILABLE TO ACHIEVE THE AIMS OF NAMMCO AND TO IMPLEMENT NAMMCO'S DECISIONS"

NAMMCO's income is derived mainly from member country contributions except for significant extra income in the 2018 budget for the NASS and MFR. Norway pays 50% of the member contributions plus an amount for "employers tax", Iceland pays 25% and Greenland and the Faroe Islands each pay 12.5%. See Table 7 for details on the actual and projected total income and budget expenditures for the period 2017-2020³³⁰.

Table 7 - Actual and projected total income and budget expenditures for the period 2017-2020

	2017	2018	2019	2020
Total income	4,932,336 NOK	5,803,476 NOK	4,912,030 NOK	5,004,972 NOK
Expenditures	5,053,760 NOK	6,348,349 NOK	5,281,750 NOK	4,960,000 NOK

These numbers show that total expenditures for 2017, 2018 and 2019 are higher than total income and that for 2020, total income is only slightly higher than total expenditures. Notwithstanding this and the resulting drawdown of the General Reserve, there was no proposal or agreement at the 26th meeting of the Council in March 2018 to increase member contributions.

Major expenditures to be funded from the 2018 budget include staff related costs 3,249,700 NOK, recruitment of new Scientific Secretary 427,775 NOK, staff travel and subsistence 202,228 NOK, office rent 270,000 NOK, communications and outreach 202,150 NOK, Scientific Committee 195,500 NOK, NASS 2015 484,778 NOK, MMFR 156,712 NOK and performance review 646,902 NOK.

Staff related costs together with staff travel and subsistence represent an average expenditure of 71% of income for the years 2017–2020. This compares with an average expenditure of 4% for communications and outreach and 3% for the Scientific Committee for the same years³³¹. The following information provides a comparison with four other IGOs:

- NAFO (14 Contracting Parties, 11 staff members), Secretariat costs: 77%;
- OSPAR (16 Member Countries, 12 staff members), Secretariat costs: 63%;
- ACCOBAMS (23 Contracting Governments, 6 staff members) 43% Staff (the Executive Secretary salary is partially paid by the host Country); and
- IWC (88 Contracting Governments; 21 Staff members): Secretariat costs 69%.

³³⁰ PRP2018_43.

³³¹ PRP2018_43.

For 2018 and 2019 cuts were made in all budget items. These cuts to the budgets originally proposed for 2018 to 2020 were required because of a marked increase in the cost of Public Relations, funding the relocation of the former Scientific Secretary, costs of the Performance Review and hiring of a new Scientific Secretary and because of an error made in calculating Members contributions. Cuts included no increase in salary for staff, no observation activities for 2018, postponement of some Scientific Committee working group meetings and workshops and a substantial reduction in outreach activities³³².

The Council expressed the view that these cuts would not impair the core activities of NAMMCO and tasked the FAC to consider how to rebuild the general reserve as soon as possible to 10% of the general NAMMCO budget, i.e., approximately NOK 600,000³³³.

With regard to availability of resources to implement NAMMCO decisions a review of NAMMCO member responses to recommendations from the Hunting Methods Committee³³⁴ shows that members have taken a number of initiatives related to implementing hunters training courses, publication of manuals and studies on ammunition. In addition, Greenland covers the cost of participation of Greenland hunters to relevant workshops. The Faroe Islands, Norway and Iceland report no instances where recommendations from the Committee on Hunting Methods were not implemented for financial reasons. For Greenland, lack of financial and time resources was cited as the reason for failure to implement a recommendation for development of alternative catching methods to netting for narwhal and beluga. In addition, Greenland reported that four recommendations related to studies of TTD and struck and lost have not been implemented because funding has not been allocated.

It is worth noting that, since its inception, the workload of the Scientific Committee increased in terms of (a) number of meetings of its sub-groups (from 3-4 to 5-6 per year), (b) number of meeting hours (from about 60h to over 120h per year), (c) length of reports (from about 70pp to about 570pp) and (d) number of participants (from about 20 to over 60). On the other hand, financial resources available to this Committee did not follow the same trend.

2.7.1.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 6.1.1

Q46 of the long survey, "Extent to which financial and other resources are made available to achieve the aims of NAMMCO and to implement NAMMCO's decisions" corresponded directly with Criterion 6.1.1.

Responses: "Excellent" 0, "Good" 11, "Satisfactory" 5, "Unsatisfactory" 7, "None" 0.

Of the 52 questions in the survey only 1 other question (Q5 Extent to which NAMMCO advice takes into account and incorporates an ecosystem approach to fisheries management) received as many "unsatisfactory" responses.

Among the comments received in the survey there was a general agreement that increased funding for research would be beneficial, including for NAMMCO joint projects. It was noted that Greenland makes considerable investments to implement NAMMCO's decisions and advice. The small budget is also deemed inadequate to react to contingencies. There is also the understanding that the adequacy of any budget should be assessed in relation to the vision and medium- and long-term Strategic Plan of the organization, which is lacking.

³³² PRP2018_44.

³³³ <https://nammco.no/wp-content/uploads/2018/04/report-of-the-26th-meeting-of-council-.pdf>

³³⁴ PRP2018_12.

Interviewees were not directly asked about budget issues but one interviewee suggested the budgeting was satisfactory while another expressed the hope that more resources would be available in 5 years. Another noted the lack of funding for ecosystem modeling.

The Panel also received a number of comments from interviewees related to the view that an additional scientific secretary is needed. For example:

- Need 1 more scientific secretary for editing report and special volumes, archiving catch data etc.
- Additional Scientific Secretary could also help with outreach if additional funds were available.
- If we have more expert working groups maybe need more scientific/editorial staff in the secretariat.
- Another scientific secretary would assist in keeping the journal and other publications going.

2.7.1.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 6.1.1

[PRP18-RC71] The Panel **notes** that in adopting its budget for 2018, the Council decided to postpone some activities of the Scientific Committee for one year and is of the view that implementation of such postponements should be done in a manner that minimizes any negative effects to the outputs and credibility of the Scientific Committee, which is a key element of NAMMCO's overall credibility (see criterion 7.1.2 for more comments on NAMMCO's credibility). The Panel **is of the view** that such postponement, particularly with regard to high priority issues should not be an ongoing solution to budget shortfalls. The Satellite Tagging Workshop that was postponed from 2018 may be important in this regard.

[PRP18-RC72] With regard to the cuts that were made in all budget items for 2018 and 2019, the Panel **notes** that one reason for these cuts was that funding was required for relocation of the Scientific Secretary and hiring of a new Scientific Secretary. The Panel **is of the view** that a separate fund should have been previously established to cover such inevitable costs and that funding for such costs should not come from cuts to regular program components. This is simply poor budget planning.

[PRP18-RC73] The Panel also **notes** that the Council has agreed that communications and outreach activities should be a priority³³⁵ and **recommends** that staffing be adjusted to reflect these priorities or others identified in the Strategic Plan. See also PRP18-RC80, PRP18-RC83, and PRP18-RC86. The Panel **notes** the apparent contradiction between the priority given to communications and outreach and the agreed substantial budget cuts for this activity however, the Council expressed the view that these cuts would not impair its core activities. The Panel **believes** that the substantial cuts to the budget for communications and outreach activities will certainly not advance NAMMCO's credibility in the view of other Arctic and North Atlantic organizations (see criterion 7.1.2 for more comments on NAMMCO's credibility).

[PRP18-RC74] With respect to the general reserves, the Panel **agrees** that consideration should be given to how the general reserves may, as soon as possible, be rebuilt to the level agreed.

[PRP18-RC75] The Panel **notes** that with only a few exceptions, NAMMCO Member Countries allocate sufficient national resources to implement the recommendations made by NAMMCO and is of the view that this is an important element of NAMMCO's credibility

³³⁵ NAMMCO Council Report 2018.

(see criterion 7.1.2 for more comments on NAMMCO's credibility). NAMMCO members are encouraged to maintain this situation.

[PRP18-RC76] The Panel **is aware** that additional funding from sources other than Member Government contributions has been received and managed by the Secretariat. This includes funds for NASS, MMFR, publishing manuals and the holding of some workshops. The Panel has no information to evaluate the efficiency with which the Secretariat manages these funds but **recommends** rules or guidelines for the receipt of such funds be developed for managing these types of resources.

[PRP18-RC77] In a broad sense, the Panel **notes** the allocation of budget resources to staff related costs together with staff travel and subsistence which averaged 71% of budget for the years 2017-2020 compared with an average expenditure of 4% for communications and outreach and 3% for the Scientific Committee for the same years. The Panel **recommends** that the relative proportions of budget allocations for these activities should be reviewed.

[PRP18-RC78] Finally, the Panel **is of the view** that all of the issues referred to in this section should be dealt with in the context of a Strategic Plan the development of which is recommended in section 2.1.3 (PRP18-RC4).

2.7.1.4 INTRODUCTION TO DETAILED CRITERION 6.1.2 "EXTENT TO WHICH THE SCHEDULE AND ORGANIZATION OF THE MEETINGS COULD BE IMPROVED"

The current timetable of NAMMCO sees annual meetings for most Committees and the Council. The Financial and Administration Committee (FAC) meets several times per year (2-4 times), mostly face-to-face meetings, one of which occurs at the same time as the Council meeting. The NAMMCO Working Group on By-Catch, Entanglements and Live Strandings (BYCELS) met twice in 2018.

Meetings of the Management Committees always immediately precede the meeting of the Council; whereas the Committee on Inspection and Observation (CIO) and the Committee on Hunting Methods (CHM) are always held in a different period, but also in succession. In 2018, they met twice and were followed by the BYCELS WG.

Finally, meetings of various Scientific Committee Working Groups are spread throughout the year prior to the Scientific Committee meeting. The Scientific Committee always meets several months before the Council. See Table 8 for more details on meetings scheduled in 2018 and 2019.

Table 8 - NAMMCO schedule of main meetings

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CIO		2018 & '19									2018	
CHM		2018 & '19									2018	
FAC	2018	2018 & '19	2018	2019							2018	
MCs			2018	2019								
Council			2018	2019								
BYCELS		2018									2018	
SC										2019	2018	

At its 26th meeting (2018), the Scientific Committee discussed how to improve the efficiency of its workflow. In particular, several members noted *'that the current structure of meetings does not allow for the most efficient work flow. The short timeframe between the end of the field season (typically from June-September) and the SC meeting often meant that*

several WGs had to be squeezed in between these times. This limits the time available for completing tasks and preparing for meetings in a comprehensive manner. Data from that year's field season is also typically not able to be presented. With Council meeting in spring, it was also noted that management decisions are typically not able to be implemented until the following year. It was therefore proposed that having the SC meet in spring and the Council meet in autumn may create a more effective and efficient work flow³³⁶.

In 2018, the Panel had the chance to observe meetings of the Management Committees, Council and Scientific Committee.

2.7.1.5 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 6.1.2

Answers to question Q47 on how NAMMCO manages the schedule and the organizations of the meetings registered a quite high rate of dissatisfaction (6 "unsatisfactory" out of 23 respondents). However, none of the comments made were about the quality of the organization of the meetings, but rather about the schedule. Complaints were that there were too many Scientific Committee working group meetings, particularly because with limited staff, the release of reports in a timely manner has been challenging. Suggestions varied from increasing the scientific staff, reprioritizing the scientific activities or establishing a more strict procedure to submit data.

2.7.1.6 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 6.1.2

[PRP18-RC79] The Panel **notes** that the quality of the organization of NAMMCO meetings is adequate. It also **notes** that the current schedule poses some difficulties, especially in regard to the various Scientific Committee working groups and **recommends** that the Secretariat with the Scientific Committee chair and all conveners of all working groups examine alternative options (e.g. having the Scientific Committee in April/May and the Council in November), with a goal of giving more time to the Scientific Committee and its working groups to respond to Council's requests.

2.7.2 Efficiency and cost effectiveness

AREA 6 – FINANCIAL AND ADMINISTRATIVE ISSUES	
<i>General criteria</i>	<i>Detailed criteria</i>
6.2 Efficiency and cost effectiveness	<p>6.2.1 Extent to which NAMMCO is efficiently managing human and financial resources including those of its Secretariat.</p> <p>6.2.2 Extent to which NAMMCO and NAMMCO parties are efficiently managing the data necessary for stock assessments (abundance & removal data) and the evaluation of trends in hunters' safety and hunting efficiency, in order to provide repeatability and consistency in analyses.</p>

2.7.2.1 INTRODUCTION TO DETAILED CRITERION 6.2.1 'EXTENT TO WHICH NAMMCO IS EFFICIENTLY MANAGING HUMAN AND FINANCIAL RESOURCES INCLUDING THOSE OF ITS SECRETARIAT'

Human resources within the Secretariat include a General Secretary, a Deputy Secretary, a Scientific Secretary, a Scientific and Communication Assistant and an Intern. The Scientific and Communication Assistant was an intern from June to October 2018 and became the Communications Coordinator in October 2018, initially with a 4-month contract, followed by an 8-month contract. The Norwegian Labor and Welfare Administration has agreed to fund 50% of these contracts. The period of work for intern positions is usually 3-9 months. The position of Scientific Secretary was vacant from May 1 to Oct. 22, 2018. During that

³³⁶ NAMMCO Council Report 2018.

time, in addition to her duties as the General Secretary, the General Secretary also assumed the duties of the Scientific Secretary, which resulted in significant overwork and inability to implement part of her work plan. The new Scientific Secretary will work 85% of regular work time from the end of Oct. 2018 to the end of June 2019.

Information on human and financial resources available to NAMMCO and information concerning 2017 accounts, the 2018 budget, the draft budget for 2019 and the forecast budget for 2020 and budget cuts for 2018 and 2019 are provided in the Panel's response to criterion 6.1.1 above.

Staff rules for the Secretariat describe the power and authority of the General Secretary regarding the management of the Secretariat, signature authority related to financial matters, and recruitment of staff (i.e., general staff).

2.7.2.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 6.2.1

Q48 from the long version of the survey is relevant. "Extent to which NAMMCO is efficiently managing human and financial resources including those of the Secretariat."

5 respondents answered "Excellent", 5 "Good", 11 "Satisfactory" and 3 "Unsatisfactory". There were 0 respondents that answered "None".

In general, comments from respondents indicated the need for more expertise in marine mammal science and management (e.g. modeling expertise). A few comments pointed out a lack of planning and strategic approach in the Secretariat staffing, with basic tasks carried out by highly specialized and costly personnel (e.g. lack of administrative/clerical staff/general services staff, as for example a secretary, dealing with accounting, formatting of reports and general document archiving. Commenters also noted that there is no plan on Secretariat capacity building and that the current situation seems to create antagonist feelings at the Secretariat. Some suggested that the applied financial rules, which are a mixture of Norwegian and IGO/international regulations, should be revisited.

One respondent also pointed out another issue: that the management of human resources caused some overload for members of the Scientific Committee who also work within the IWC too. This leads to some scientists complaining of unnecessarily duplicative efforts.

Interviews

During its interviews the Panel heard many comments from member government representatives and scientists as well as from former and present members of the Secretariat related to the management of human and financial resources and the need to restructure the Secretariat.

Examples of comments expressing a need for restructuring the Secretariat included:

- Secretariat is too small.
- Secretariat should be restructured to have one person for general services
- Restructuring secretariat should also consider present contracting-out arrangements (could this be reduced?).
- Extra secretariat staff needed to support intersessional meetings and working groups.
- Secretariat should have staff to do web update rather than contracting this work out.
- Other issues for additional secretariat staff include: updating Facebook, managing catch statistics database, editing reports and special publications, and preparations for Management Committee and Council meetings.

In addition, there were a number of more general comments. These included the following:

- Hopefully in five years we will have more resources
- NAMMCO is not using resources efficiently
- Management of staff and money is not efficient.
- Need staff rules to define the authority of the General Secretary.
- Budgeting its activity based rather than strategic planning.
- Publishing manuals and some workshops is done with external funding.
- Secretariat responsible for raising extra funding.
- Secretariat restructuring required to address salary structure and better definition of expected work for General Secretary and other staff.
- Planning for new funding possibilities is needed.

The Panel also received some information related to staff salaries and benefits.

2.7.2.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 6.2.1

See section 2.7.1.3 for Panel's considerations on the request for an additional Scientific Secretary.

[PRP18-RC80] The Panel **notes** that, despite the expressed need for an additional Scientific Secretary, the position of the existing Scientific Secretary has been vacant from May 1 to October 22, 2018 and that the recruitment panel agreed that the new Scientific Secretary will work only 85% of regular work time from the end of October 2018 to the end of June 2019. The Panel **recognizes** that the work of the Scientific Committee and Council functioned during this time in part because the General Secretary is a scientist, but there were significant tasks that could not be completed. The Panel **is of the view** that this was the result of the failure to hire a Scientific Secretary in a timely fashion. The Panel **recommends** that issues identified as a result of this situation and other personnel issues be addressed in accordance with any Strategic Plan that is developed.

[PRP18-RC81] The Panel **notes** that the selection process for hiring a new Scientific Secretary resulted in the appointment of a person with no experience with NAMMCO or any aspects of marine mammal science including estimating population abundance and animal welfare. The Panel **also questions** whether the new Scientific Secretary's lack of experience with marine mammal assessments will not be helpful for assisting the Scientific Committee's required work on assessment (see also PRP18-RC5).

[PRP18-RC82] The Panel **also notes** that the hiring of a Scientific and Communication Assistant might not be sufficient to implement NAMMCO's Communication plan. Given that communications and outreach receives the largest allocation of NAMMCO's program elements and the fact that communications and outreach activities are an essential component of establishing NAMMCO's credibility, NAMMCO should consider hiring someone with extensive experience and expertise in communications.

[PRP18-RC83] The Panel heard a number of other comments and suggestions concerning the need for restructuring the Secretariat (see section 2.7.2.2 above) and **suggests** that these could more appropriately be addressed by the Finance and Administration Committee and the Council or a SWOT analysis, if one is to be carried out for the Secretariat. A SWOT analysis of the Secretariat should also include a review of the Staff Rules for the Secretariat and, again, the issue of restructuring the Secretariat should be part of the development of a Strategic Plan.

[PRP18-RC84] The Panel also **suggests** that given the Council's appropriation of a high priority to using the website for communications and outreach activities, a review be

undertaken to determine if the current outsourcing of work related to the NAMMCO website is the best and most cost effective way of achieving this.

[PRP18-RC85] The Panel also **recommends** that an outside consultant be hired to examine and provide advice relative to the level of staff salaries and benefits, including in comparison to other IGOs, and other related issues.

[PRP18-RC86] While the Panel received a lot of input on changes to the Secretariat, and that more input may be generated through the SWOT process for the Secretariat, the Panel **does not believe** that it is in a position to make meaningful and informed recommendations about how the Commission is managing its financial and human resources without an understanding of the Commission's strategic vision. Therefore again, the Panel **recommends** that NAMMCO should define, while developing a Strategic Plan, the relative priorities among various commission functions including science, communications, and outreach. The Strategic Plan should inform all decision making with respect to the work of the Commission including the allocation of human and financial resources.

2.7.2.4 INTRODUCTION TO DETAILED CRITERION 6.2.2 'EXTENT TO WHICH NAMMCO AND NAMMCO PARTIES ARE EFFICIENTLY MANAGING THE DATA NECESSARY FOR STOCK ASSESSMENTS (ABUNDANCE & REMOVAL DATA) AND THE EVALUATION OF TRENDS IN HUNTERS' SAFETY AND HUNTING EFFICIENCY, IN ORDER TO PROVIDE REPEATABILITY AND CONSISTENCY IN ANALYSES'

This detailed criterion is related to, and overlaps with, detailed criteria 1.3.2 on the '*extent to which NAMMCO Parties, individually or through NAMMCO, collect and share complete and accurate data concerning marine mammal stocks and other relevant data in a timely manner, including analysis of trends in hunting activities and abundance estimates over time*' (see section 2.2.3.4) and 1.3.3 on the '*extent to which NAMMCO Parties collect complete and accurate data on hunting activities (catch statistics, hunting effort, struck and lost)*' (see section 2.2.3.7). The background material discussed in those sections is relevant to the Panel's considerations here.

NAMMCO does not maintain any official, accessible and fully verified database on abundance, removal data or data on hunts' efficiency and safety, and bycatch. Currently the Secretariat holds a limited number of "archives" in Excel file documents (i.e., agreed abundance table and catch data).

2.7.2.5 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 6.2.2

Answers to Q49 on how well NAMMCO or NAMMCO Parties efficiently manage the necessary data for '*stock assessments (abundance & removal data) and evaluation of trends in hunters' safety and hunting efficiency, in order to provide repeatability and consistency in analyses*', showed an overall satisfaction (two "excellent", 11 "good" and five "satisfactory"), with only four 'dissatisfied'. The latter group highlighted that the absence of a central and NAMMCO-coordinated database (recommended by NAMMCO for decades)³³⁷ is greatly hampering quality control of data and a lack of repeatability and understanding of different outcomes obtained at different time on the same data. In addition, they pointed out that data related to hunting efficiency are not kept at the Secretariat, which poses serious issues on efficiency of access and quality control.

2.7.2.6 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 6.2.2

[PRP18-RC87] As highlighted in recommendations PRP18-RC23 and PRP18-RC25, the Panel **is of the view** that a centralized database on stock assessments (abundance &

³³⁷ This issue is recurrent in Scientific Committee's reports since 1996. See also NAMMCO Annual Report 1996.

removal data) and for the evaluation of trends in hunters' safety and hunting efficiency, is fundamental to providing repeatability and consistency in analyses and **recommends** that NAMMCO develops such a database as soon as possible. It also **recommends** development of a procedure that specifies, among other things, the level of accessibility to data within and outside NAMMCO, the data quality control process, and deadlines for data submission, among other things.

2.8 Outreach

2.8.1 Visibility

This section is looking at NAMMCO's performance in terms of visibility, through three sub-criteria.

AREA 7 – OUTREACH	
General criteria	Detailed criteria
7.1 Visibility	<p>7.1.1 Extent to which NAMMCO has developed and disseminated a clear overall message.</p> <p>7.1.2 Extent to which NAMMCO has succeeded in establishing itself as a pre-eminent, effective and credible forum for the conservation and management of marine mammals in the Arctic and Northern Atlantic regions.</p> <p>7.1.3 Extent to which NAMMCO has succeeded in establishing itself as credible source of information for all target groups, including media, politicians, IGOs and NGOs and educational institutions on all issues related to marine mammal conservation.</p>

2.8.1.1. INTRODUCTION TO DETAILED CRITERION 7.1.1 'EXTENT TO WHICH NAMMCO HAS DEVELOPED AND DISSEMINATED A CLEAR OVERALL MESSAGE'

*"NAMMCO is an international regional body for cooperation on conservation, management and study of cetaceans (whales, dolphins and porpoises) and pinnipeds (seals and walruses) in the North Atlantic. [...] Through regional cooperation, the NAMMCO member countries aim to strengthen and further develop effective conservation and management measures for marine mammals. Acknowledging the rights and needs of coastal communities to make a sustainable living from what the sea can provide, such measures should be based on the best available scientific evidence and user knowledge and take into account the complexity and vulnerability of the marine ecosystem"*³³⁸. This explanation of what NAMMCO is and its aims are included on the NAMMCO website³³⁹. It is a message that NAMMCO has consistently articulated in the descriptions of the organization published in NAMMCO brochures in 1995, 2000 and 2003³⁴⁰. NAMMCO heads of delegations interviewed by the Panel at the 26th meeting of the Council in 2018 all agreed that this description accurately reflects NAMMCO's mission. This idea has been presented by other senior representatives, such as Mr. Thorsteinn Palsson, Minister of Fisheries of Iceland who stated, *"it is clear that regional cooperation with respect to conservation, management and study of marine mammals is fully consistent with our obligations under international laws"* (opening address to the 3rd Meeting of the Council)³⁴¹.

At its inaugural meeting in 1992 the Council agreed to further examine a proposal for an

³³⁸ <https://nammco.no/about-us/>

³³⁹ [nammco.wpengine.com/wp-content/uploads/2016/08/Annual-report-1992-1st-meeting-of-the-Council.pdf](https://nammco.no/wp-content/uploads/2016/08/Annual-report-1992-1st-meeting-of-the-Council.pdf)

³⁴⁰ https://nammco.no/wp-content/uploads/2018/07/nammco_1995.pdf

³⁴¹ NAMMCO Annual Report 1993.

information officer in the NAMMCO Secretariat, as well as for the establishment of a "NAMMCO information Fund"³⁴².

The NAMMCO Fund was established by the Council in 1993 to support projects which "contribute to the knowledge and understanding of the rational utilization of marine mammals" (Article 1 of the Fund Statutes). The Fund supported 26 projects from 1993 to 2002 with a wide range of communication scope. Only 19 of the projects were completed³⁴³. Because of '*growing concern that the NAMMCO Fund was not generating the intended outcome [...] the Fund was put on hold*' so that alternative approaches for the Fund could be considered at the 2005 meeting of the Council (NAMCO Fund document 2005/3)³⁴⁴. At its 14th Annual meeting the Council decided to dissolve the NAMMCO Fund as recommended by the Board of the NAMMCO Fund. The Chair of the Council noted that while "*the Fund had accomplished a lot during to time of its existence, and had supported a wide scope and range of projects [...] the financial and human resources put into the Fund would be better spent on producing more information related to the work of NAMMCO itself*"³⁴⁵.

Recent efforts to disseminate NAMMCO's message(s) include a one-page leaflet issued in 2015 simply titled "NAMMCO" that provides a chart illustrating the structure of NAMMCO's subsidiary bodies of the Council and highlights the following subjects: NAMMCO's mission, NAMMCO's goal, species, member countries, mandate, observation of hunting activities, stock assessments, science based management, improving hunting efficiency, supporting science and disseminating science, sustainable use, sustainable communities, responsibility, best practices, regional cooperation and, training and education of hunters³⁴⁶.

In 2017 for its 25-year jubilee, NAMMCO produced another leaflet that included sections on "*why NAMMCO*", "*some achievements*" and "*future challenges*". This was another effort to enhance NAMMCO's visibility and disseminate its message(s)³⁴⁷.

Another leaflet published in 2017 titled "*No Food – Or?*" sponsored by the Nordic Council of Ministers highlighted the subjects of marine mammal hunting amongst Arctic peoples, good diet, blue growth, abundance of resources, threats from the south and green alternatives³⁴⁸. All of these subjects are a part of NAMMCO message(s) described above.

In addition to the 1 or 2-page leaflets cited above, in 2017 NAMMCO published a 50-page document titled "*Marine Mammals: a multifaceted resource*" that included a comprehensive presentation and analysis of all of the issues that make up NAMMCO's messages emanating from the substance of the description of the organization included as paragraph 1 above³⁴⁹. A two-page summary of this document is also available³⁵⁰.

Another example of a well-articulated statement of NAMMCO's messages is the "Nuuk Declaration" adopted by the Council at the close of its 25th meeting in 2017³⁵¹. As reflected in the press release issued at the close of the 25th meeting, the "*Nuuk Declaration* inter alia *reaffirmed their commitment to the rational management, conservation and responsible*

³⁴² nammco.wpengine.com/wp-content/uploads/2016/08/Annual-report-1st-meeting-of-the-Council.pdf

³⁴³ <https://nammco.no/wp-content/uploads/2018/01/nammco-fund-2005-2-project-overview.pdf>

³⁴⁴ <https://nammco.no/wp-content/uploads/2018/01/nammco-fund-2005-3-future-of-the-fund-background-paper.pdf>

³⁴⁵ NAMMCO Annual Report 2004, pp. 33-34.

³⁴⁶ http://nammco.no/wp-content/uploads/2018/01/nammco-folder-a4-trifold_cor220317.pdf

³⁴⁷ http://nammco.no/wp-content/uploads/2018/01/nammco-25-leaflet_faces-behind-nammco.pdf

³⁴⁸ http://nammco.no/wp-content/uploads/2018/01/nammco-mmfr_rev-jan-2017.pdf

³⁴⁹ <http://nammco.no/wp-content/uploads/2017/marine-mammals-a-multifaceted-resource.pdf>

³⁵⁰ http://nammco.wpengine.com/wp-content/uploads/2017/03/marinemammalsmultifacetedresource_summary.pdf

³⁵¹ https://nammco.no/wp-content/uploads/2017/08/nuuk-declaration_nammco-25_april-2017.pdf

*use of the living resources of the sea, and expressed their conviction that a regional body, built upon mutual understanding, trust and respect for each other's ways of life, and operating on a sound scientific basis, is the best forum for ensuring the effective conservation and sustainable use of marine mammal resources, as part of the effort on food security worldwide*³⁵².

Also at its April 2017 meeting, the Council adopted the "NAMMCO Communication and Outreach Strategy"³⁵³ including its "NAMMCO Communications Plan 2017-2018"³⁵⁴, which was intended to increase NAMMCO's visibility and the dissemination of its messages based primarily on the use of the most recent website established in 2017. *"The Communications and Outreach Strategy addresses long-term (10 years) communications objectives, overarching messages, various target groups and different types of communication channels. [...] What NAMMCO is, does and succeeds in achieving will be more actively and widely communicated"*.³⁵⁵ In adopting the NAMMCO Communication and Outreach Strategy the Council also endorsed the priority given by its Finance and Administration Committee to a significantly increased communication and outreach effort and its financial implications (see page 10 of the Report of the 25th meeting of the Council).³⁵⁶

The Council report of the 26th meeting (2018) also notes that the Council endorsed the FAC advice to *"Reconfirm the continued prioritization to update the NAMMCO website, and its use as a hub of all NAMMCO information, communications and outreach activities both internally and externally"*³⁵⁷.

Outreach activities in 2017 included Secretariat attendance at and active participation in a number of conferences and events including: (a) the Arctic Frontiers conference, where NAMMCO was the co-organizer of one scientific session; (b) the annual meeting of the European Cetacean Society and associated workshops, where NAMMCO was the author or co-author of two posters; (c) the conference on Sustainable Utilisation of Marine Mammals, organized by members of the Danish Parliament, where NAMMCO delivered a talk; (d) the biennial World Seafood Congress, where NAMMCO delivered a talk dealing with marine mammals as food resource; (e) the Arctic Circle assembly, where NAMMCO co-organized a breakout session with the Inuit Circumpolar Council, Nunavut Tungavik Inc. and WWF arctic Program and delivered a talk; (f) the biennial conference of the Society for Marine Mammalogy, where NAMMCO had a booth; (g) the Nordist meeting organised by the Nordic Council of Ministers where NAMMCO delivered a talk; (h) the EU parliament event on *"How can we support Indigenous people – The initiative of a QR code"* and the event organized by the Danish EU representation on *"A new way to support indigenous people"*, where NAMMCO delivered talks; (i) the international high-level conference on *"SDGs in the Arctic – Local and global perspective"*; (l) and the Venice Human Rights Cultural Festival, where NAMMCO delivered a talk and participated in a debate³⁵⁸.

Communication efforts have been enhanced by the launching of a Facebook page in 2015 and the new NAMMCO website in 2017. A twitter account was also launched in September 2018. Data is not currently available to assess the degree of success of this enhancement.

³⁵² <https://nammco.no/wp-content/uploads/2017/09/nammco-annual-report-2016.pdf>

³⁵³ <https://nammco.no/wp-content/uploads/2017/03/20-nammco-25-communication-and-outreach-strategy.pdf>

³⁵⁴ <https://nammco.no/wp-content/uploads/2017/03/21-nammco-25-communication-plan.pdf>

³⁵⁵ NAMMCO/25/20

³⁵⁶ <https://nammco.no/wp-content/uploads/2017/09/nammco-annual-report-2016.pdf>

³⁵⁷ <https://nammco.no/wp-content/uploads/2017/09/nammco-annual-report-2017.pdf>

³⁵⁸ <https://nammco.no/wp-content/uploads/2017/09/nammco-annual-report-2017.pdf>

2.8.1.2 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 7.1.1

Full details on responses from survey respondents and interviewees to Q50 on detailed criteria 7.1.1 are included in Appendix 7.

36 out of 38 respondents to the Panel's survey questionnaire on this matter rated NAMMCO's development and dissemination of a clear overall message as 'Satisfactory', 'Good' or 'Excellent'. 27 out of 38 rated them as 'Good' or 'Excellent'. One rated it as 'unsatisfactory' with not further explanation. Very positive comments were made on the new website.

Interviews conducted by the Panel yielded the following responses concerning the extent to which NAMMCO has developed and disseminated a clear overall message:

- "NAMMCO should better inform the public about what it and its members are doing"
- "NAMMCO scientific achievements could be better publicized"
- "Hunters in remote regions may not know about NAMMCO"

2.8.1.3 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 7.1.1

[PRP18-RC88] The Panel **finds** that the Commission has developed a clear message about its mission, **notes** that there have been inconsistencies in how it has disseminated that message, but also **notes** that improvements in the website, creation of a Facebook page and development of the "NAMMCO Communication and Outreach Strategy" and the "NAMMCO Communications Plan 2017-2018" have been very important steps in the direction of improving the dissemination of NAMMCO's message. The Panel **urges** the Commission to integrate the Communication and outreach strategy into a broader overall strategy for NAMMCO and **notes** that making the public aware of the work that NAMMCO is doing is important to enhancing the stature of the organization as a science organization and as an organization that supports the efforts of its members to sustainably manage marine mammal resource.

[PRP18-RC89] The Panel also **recommends** continuing the practice of adopting shorter term (no more than two year) and more detailed "Communications and Outreach Plans" for implementing the strategy. It also **recommends** that the Commission adopt and implement quantifiable measures of the effectiveness of the Plan and of various tools that are used to implement the Plan including the website, the Facebook page and the Twitter feed. These measures should go beyond simply noting the number of hits. Furthermore, the Panels **recommends** that the Council ensure that the budget for implementation of the Communications and Outreach Plans is sufficient to meet the goals therein.

In regard to the website, see also comments, recommendations and conclusions under criteria 1.1 (PRP18-RC7), 3.1.1 (PRP18-RC54), 5.1 (PRP18-RC60, PRP18-RC62) and 6.2.1 (PRP18-RC84). In regard to National Progress Reports, see section 2.8.1.6 (PRP18-RC88).

2.8.1.4 INTRODUCTION TO DETAILED CRITERION 7.1.2 'EXTENT TO WHICH NAMMCO HAS SUCCEEDED IN ESTABLISHING ITSELF AS A PRE-EMINENT, EFFECTIVE AND CREDIBLE FORUM FOR THE CONSERVATION AND MANAGEMENT OF MARINE MAMMALS IN THE ARCTIC AND NORTHERN ATLANTIC REGIONS'

The Panel's evaluation of NAMMCO's performance with regard to criterion 7.1.2/Q51 is primarily based on its review of NAMMCO's scientific output including its Scientific Publications Series, reports of the Scientific Committee and its stock status reports, symposia and Expert Working Groups organized and its cooperation with other relevant organizations (see also, responses to criteria 1 and 5). The Panel is of the view that a review

of the Commission's credibility should include an assessment of how its products are received, including by members, peers, stakeholders and the academic community. In this regard we note responses to the survey and interviews concerning the main outputs from the Scientific Committee and the Committee on Hunting Methods as well as recommendations from the management committees were, with only minor exceptions, positive. This includes members and stakeholders. Also, as a proxy in support of this, attendance and participation of renowned scientists and international experts in the work of the Scientific Committee and Committee on Hunting Methods add to the positive assessment of the Commission's work.

The Panel also reviewed the NPRs submitted by NAMMCO members and considered the work of the Management Committees (see Panel's response to Criteria Conservation and management – Adoption of conservation and management measures), the Committee on Hunting Methods (see Panel's response to Criteria 2 – Hunting activities) and the Committee on Inspection and Observation (see Panel's response to Criteria 3 – Compliance and enforcement) and NAMMCO's organization of international conferences (see below).

Because of the overlap of some of the Performance Review criteria, the Panel's response to this criterion (7.1.2/Q51) needs to be read in conjunction with all other criteria. These are all elements of NAMMCO's credibility.

Establishing itself as a credible source of information, expanding its interaction with media, with other organizations and with the inhabitants of its four member countries, making the work of NAMMCO more widely known and strengthening itself as an international actor are the primary goals of the "NAMMCO Communication and Outreach Strategy" adopted by the Council in April 2017³⁵⁹.

The NAMMCO Scientific Publications Series are available on the NAMMCO website. They include:

- Volume 1: Ringed seals in the North Atlantic
- Volume 2: Minke whales, harp and hooded seals: Major predators in the North Atlantic ecosystem
- Volume 3: Seal worms in the North Atlantic: Ecology and population dynamics
- Volume 4: Belugas in the North Atlantic and the Russian Arctic
- Volume 5: Harbour porpoises in the North Atlantic
- Volume 6: Grey seals in the North Atlantic and the Baltic
- Volume 7: North Atlantic Sightings Surveys: Counting whales in the North Atlantic 1987-2001
- Volume 8: Harbour seals in the North Atlantic and the Baltic
- Volume 9: Walrus of the North Atlantic
- Volume 10: Age estimation of marine mammals with a focus on monodontids

In addition, information sheets on the biology, conservation status, management, and research have been produced for four out of six species of baleen whales, eight out of 10 species of toothed whales and 7 pinniped species that are common permanent residents in the NAMMCO management area have been published and are available on the NAMMCO website. These include: bowhead whale, fin whale, common minke whale, humpback whale, Atlantic white-sided dolphin, beluga, killer whale, long-finned pilot whale, narwhal, northern bottlenose whale, white beaked dolphin, harbor porpoise, Atlantic walrus, bearded seal,

³⁵⁹ <https://nammco.no/wp-content/uploads/2017/09/nammco-annual-report-2016.pdf>

harp seal, hooded seal and ringed seal, grey seal, harbor seal. The Scientific Committee has also produced an overview of the conservation status of marine mammal stocks in NAMMCO member countries³⁶⁰.

In furtherance of conducting its work, NAMMCO organized many conferences, workshops and Expert Working Groups.³⁶¹

2.8.1.5 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 7.1.2

Respondents to the question "Extent to which NAMMCO has succeeded in establishing itself as a pre-eminent, effective and credible forum for the conservation and management of marine mammals in the Arctic and North Atlantic regions, 33 out of 34 responded "satisfactory", "good" or "excellent. One rated it as 'unsatisfactory' with no further explanation. Additional interesting comments were made, including "[...] *I think 'pre-eminent' is a stretch and 'effective and credible' are intrinsically hard to achieve given the limited membership*"; *"Much remains to be done. Certainly NAMMCO is not a very well know[n] organisation and even in NAMMCO countries, people still believe that it is a hunter club. However, NAMMCO does more in terms of Marine Mammal Conservation than many other more recognised organisations"*.

2.8.1.6 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 7.1.2

See comments already made under section 2.7.1.3 of criterion 6.1.1. on some budgetary and human resources choices.

[PRP18-RC90] The Panel **is of the view** that the outputs from the NAMMCO are substantial and substantive and have made it a credible forum for the discussion of the conservation and management of marine mammals in the Arctic and North Atlantic regions. These include the National Progress Reports, organization of conferences/symposia, workshops and Expert Working Groups, cooperation with other relevant organizations and the work of the Scientific Committee, Management Committees, Committee on Hunting Methods and Committee on Inspection and Observation. See criterion 5.2.2, section 2.6.2.4.

The effectiveness of the organization included as part of Criteria 7.1.2 is addressed as part of the Panel's response to Criteria 6 – Financial and administrative issues.

2.8.1.7 INTRODUCTION TO DETAILED CRITERION 7.1.3 'EXTENT TO WHICH NAMMCO HAS SUCCEEDED IN ESTABLISHING ITSELF AS A CREDIBLE SOURCE OF INFORMATION FOR ALL TARGET GROUPS INCLUDING MEDIA, POLITICIANS, IGOs AND NGOS AND EDUCATIONAL INSTITUTIONS ON ALL ISSUES RELATED TO MARINE MAMMAL CONSERVATION'

To inform its response to this criterion the Panel asked the Secretariat to respond to the following questions:

- In the past 5 years, has NAMMCO provided information to or worked with any educational institutions (specify the nature of the information requested or work and the educational institutions)?
- How many times in the past 5 years have parliamentarians referred to NAMMCO – in what fora?
- How many times in the last 5 years have parliamentarians asked NAMMCO for information?
- How many times in the last 5 years have representatives of NAMMCO members or the Secretariat given media interviews (specify print, radio, TV or other) local or

³⁶⁰ PRP2018_24.

³⁶¹ PRP2018_07

international?

- How many times in the last 5 years, has the work of the NAMMCO Scientific Committee or CHM been used or cited by other scientists or relevant IGOs (IWC, CITES, FAO, ICES, NAFO etc)?
- How many times in the last 5 years and by whom has NAMMCO been asked to participate in the work (specify the nature of the work) of other related organizations (IGOs and NGOs)?

To these, the Secretariat added the following 3 questions:

- How many times in the last 5 years has NAMMCO asked other organizations
- (IGOs and NGOs) to participate in its work (specify the nature of the work and who)?
- Describe how NAMMCO cooperates with other marine mammal management organizations and other international organizations dealing with marine mammal conservation. – organization of scientific/technical meetings (how many annually), organization of political/policy meetings (how many annually), organization of public awareness meetings (how many annually)³⁶²
- Other indices showing that NAMMCO is a credible/recognized partner.

The responses of the Secretariat were given in an email exchange. The Secretariat commented that *"many [of the questions] are difficult to answer because there are no archive system here and no-overview of activities kept"*³⁶³.

Concerning contact with educational institutions³⁶⁴, beginning in the summer of 2015, NAMMCO has received inquiries from students from various institutions over a broad geographical area: 4 in 2015, 7 in 2016, 11 in 2017 and 6 in 2018. Inquires before this time were not archived in a way that made it feasible to retrieve them. Cooperation with educational institutions has included:

- Support for a PhD student at the University of St. Andrews,
- Lectures at Gujarat International Maritime Law Academy, Arctic University of Norway, the University Center in Svalbard, Inuit College in Ottawa, UIMP bi-annual course in Valencia, Whales Research group in Tokyo and, the NAMMCO/Institute of Marine research seminar series in Norway.
- Lectures at the Tromsø UIT.

Most of these were ad hoc and opportunistic arrangement that, with the exception of the NAMMCO/IMR seminars, have not continued.

New initiatives include:

- Seeking partnership with the International Master of Science in Marine Biological Resources program (organized by nine European universities),
- Offering to organize a mini workshop on indigenous rights with the European Inter-University Centre for Human Rights and Democratization,
- Offering to lecture as part of the Arctic Frontiers Emerging Leaders program and,
- Arranging a symposium for presentation of student projects related to marine mammals at the University of Tromsø.

A comprehensive answer to the Panel's questions related to the frequency of contacts with parliamentarians was not available. The following examples were provided³⁶⁵.

³⁶² The Panel used information provided in response to this question for its response to criteria 5.3.1.

³⁶³ September 20, 2018 email from Genevieve Desportes to Caterina Fortuna, Russell Smith and Dan Goodman.

³⁶⁴ September 20, 2018 email from Genevieve Desportes to Caterina Fortuna, Russell Smith and Dan Goodman.

³⁶⁵ September 20, 2018 email from Genevieve Desportes to Caterina Fortuna, Russell Smith and Dan Goodman.

- in 2015, a Faroese parliamentarian arranged a conference in the Danish Parliament on pilot whaling in the Faroe Islands and in 2017, another conference in the Danish Parliament on the role of marine mammals in marine ecosystems. NAMMCO was asked to help with preparations and attended the 2017 conference.
- once or twice a year contact between the NAMMCO Secretariat and Greenlandic and Faroese members of the Danish Parliament.
- In 2001 and 2014, the NAMMCO Secretariat made presentations to the Norwegian Parliament and the Statssekretær.
- General Secretary invited by the European Parliament intergroup on "Climate Change, Biodiversity and Sustainable Development and MEP Jorn Dohrmann to attend a conference and deliver an intervention of seal hunting and seal products.

With regard to frequency of media contacts, parties were unable to provide specific data. The Faroe Islands noted that every year journalists have a special interest in the pilot whale harvest. The Secretariat sends press releases both before and after Council meetings and ministerial meetings to a list of Scandinavian newspapers and media as well as a few European ones and has regular but infrequent contact with media/film makers.

As with the issues summarized above it is difficult to obtain useful information concerning the number of times the work of the NAMMCO Scientific Committee or CHM has been used or cited by other scientists or relevant IGOs (IWC, CITES, FAO, ICES, NAFO ETC.). Several reasons were given for this including³⁶⁶:

- published work of NAMMCO refers only to NAMMCO reports and does not include work of individual scientists,
- many of the NAMMCO reports are not indexed and therefore difficult to search for quotations,
- citations of individual articles published in NAMMCO Scientific Publications were not included in the search although they are frequent.

Notwithstanding these difficulties, a search for citations of "NAMMCO work" found citations in academic journals, the IUCN red list, IWC Commission and Scientific Committee, CAFF, ICES, DFO/COSEWIC, SCOS and, NGOS.

In response to the Panel's question concerning cooperation with other marine mammal related organizations the Secretariat provided the following list of examples³⁶⁷ (see also response to criteria 5.3.2):

- In 2015, the Makah tribe asked NAMMCO to review and assess their training programs for hunters,
- In 2016, Japan asked to have their research and results on coastal seals as well as management plan reviewed by the NAMMCO coastal seals working group,
- In 2016, the CAFF Secretary asked NAMMCO to be a member of the Program Advisory Committee of the Arctic Biodiversity Congress October 2018.
- In 2016, NAMMCO was asked by IMR/Tromsø division to co-organize a harbour porpoise workshop in 2018,
- In 2016 and 2017, the Joint JCNB/NAMMCO Scientific Working Group on narwhal and beluga was asked to organize a workshop on Climate Change Impact on Management Advice,
- In 2017, the Nordic Council of Ministers asked the NAMMCO Secretariat to attend

³⁶⁶ September 20, 2018 email from Genevieve Desportes to Caterina Fortuna, Russell Smith and Dan Goodman.

³⁶⁷ September 20, 2018 email from Genevieve Desportes to Caterina Fortuna, Russell Smith and Dan Goodman.

- the “Nordist” meeting and report on NAMMCO present work and engagement,
- The NAMMCO Secretariat was asked to participate in the 2018 meeting of the ICES working group on bycatch,
- In 2017, the NAFO Secretary discussed with the NAMMCO Secretariat, ways of increasing cooperation and specific cooperation on bycatch reporting,
- OSPAR invited NAMMCO to increase cooperation and to participate in the next meeting of the NEAFC/OSPAR Collective Agreement. The NAMMCO Secretariat made a presentation titled “NAMMCO – contributing to a sustainable north”,
- The OSPAR secretariat proposed the establishment of a MoU and asked NAMMCO whether it would join the NEAFC/OSPAR Collective Agreement;
- ICES regularly asks NAMMCO for updates on population abundance estimates and in 2018 asked for closer cooperation with the NAMMCO bycatch working group.

In addition to these examples where NAMMCO been asked to participate in the work of other related organizations there are also examples where NAMMCO has asked other organizations (IGOs and NGOs) to participate in its work. These organizations have included ASCOBANS, IWC, ICES, Nunavut Tunngavik Incorporated (NTI), Makivik Corporation, Inuit Circumpolar Conference (ICC) and WWF³⁶⁸.

Other examples indicating that NAMMCO is a credible organization include invitations to participate in high-level conferences, international workshops and cooperation on surveys and population abundance estimates.

2.8.2.8 PERCEPTIONS FROM SURVEY RESPONDENTS AND INTERVIEWEES ON DETAILED CRITERION 7.1.3

Responses to Q52 were four “excellent”, 14 “good”, ten “satisfactory”, and seven “unsatisfactory”. The comments to some of the “unsatisfactory” ratings included: *“Unsatisfactory is not the appropriate word. However, for some reason the information generated by NAMMCO has not been used. This could be due to a lack of trust in the information itself or due to a lack of communication between organisations about the information and how it was produced”; “The question is too broad and its scope is almost universal! Not possible with a very small secretariat”; “Improving, but much to do yet. Few media contact NAMMCO to have information on marine mammals status or related issues. NAMMCO has to continue working on washing off its image of hunters club and be better at telling widely good North Atlantic conservation stories, related or not to NAMMCO advice”.*

Additional comments were *“With respect to scientists and administrators: ‘Good’. With respect to hunters and politicians: Vis-a-vis the outside world: ‘Satisfactory’; Vis-a-vis Greenland: Some Greenlandic resource users and politicians do not believe in advice they do not like”.*

Many positive comments related to NAMMCO’s credibility were voiced during the Panel’s interviews with member government representative, scientists, secretariat staff, IGOs and NGOs. The following are examples of these comments:

- If NAMMCO is to retain its international credibility it is important that new initiatives be implemented but this will require more resources.
- Presence of observers is recognition of NAMMCO’s status – observer NGOs representing fishermen and hunters is important.
- NAMMCO had direct cooperation with non-member countries.
- Credibility of NAMMCO increased particularly because of science outputs and

³⁶⁸ September 20, 2018 email from Genevieve Desportes to Caterina Fortuna, Russell Smith and Dan Goodman.

- hunting methods work.
- NAMMCO has always tried to cooperate with other organizations and collaborate on some aspects
- NAMMCO is a good, robust organization with its science held in high regard
- there are positive things coming out of NAMMCO that we want to be part of
- we want Canada to Join
- legitimate scientific and management capacity
- hunting methods positive output
- strength of NAMMCO is the scientific cooperation – need to ensure continuation
- NAMMCO based on scientific advice that includes a network of scientists outside of NAMMCO membership

2.8.2.9 PANEL'S VIEWS AND RECOMMENDATIONS ON DETAILED CRITERION 7.1.3

[PRP18-RC91] The Panel **considers** that the review of the Commission's credibility should include an assessment of how the products of the Commission are received, including by members, peers, stakeholders, and the academic community. This includes considering if the work is valued, relied upon or sought. NAMMCO's credibility should also be considered throughout the full range of its mandate including outputs from the Scientific Committee, its Committee on Hunting methods and recommended regulatory measures with respect to sustainable management of marine mammals across the North Atlantic.

[PRP18-RC92] In this context, the Panel **notes** the lack of quantitative information related to contacts with educational institutions, the frequency of contacts with parliamentarians and the media as well as the number of times that NAMMCO work has been used or cited by others. Many relevant examples of outreach efforts appear to have been *ad hoc*, opportunistic and involved single contacts as opposed to being components of a coordinated, prioritized and monitored communications and outreach strategy and implementation plan.

[PRP18-RC93] Notwithstanding this, the Panel **considers** that the list of examples provided by the Secretariat related to cooperation with other marine mammal related organizations, together with invitations to participate in high-level conferences, international workshops and cooperation on surveys and population abundance estimates, is substantive and that this is reflected in the positive comments on NAMMCO's credibility that were voiced during the Panel's interviews with Member Country representatives, scientists, secretariat staff, IGOs and NGOs. It **is the Panel's view** that together, items on this list demonstrate that NAMMCO has attained a level of credibility among other organizations involved with Arctic issues and marine mammal conservation and that with respect to outputs from the Scientific Committee, the Committee on Hunting methods and recommended regulatory measures with respect to sustainable management of marine mammals across the North Atlantic its work is "*valued, relied upon and sought*". However, some of the survey responses noted that a lack of effective means for communication and of institutionalized lines of communication with other regional actors (e.g. Letters of Agreement and/or MoUs) may have reduced opportunities for cooperation and collaboration. Therefore, the Panel **encourages** NAMMCO to enter into formal agreements with relevant IGOs, aimed at achieving common scientific, conservation and management goals.

[PRP18-RC94] The Panel **understands** that there is a linkage between the level of NAMMCO's outreach and communications efforts and the views of NAMMCO's credibility from external target groups such as journalists, Nordic politicians, and educators and that NAMMCO had no comprehensive communication and outreach strategy to address this

until its adoption of such in April 2017. The Panel **is of the view** that the degree to which the communications plan for 2017-18 accompanying the communications and outreach strategy is implemented is primarily a budgetary decision that could, with increased funding and effort, result in enhancing the views of NAMMCO's credibility from some external target groups. The Panel **believes** that for the users of marine mammals, views of NAMMCO's credibility are more likely to be based on the transparency of NAMMCO's process for developing recommendations and the degree of their involvement in the national process for the development of regulatory measures. The Panel also **believes** that obtaining a positive view of NAMMCO's work (see section 2.6.3) from other organizations involved with the conservation of marine mammals and Arctic issues is important. The Panel **recommends** that, at a minimum, cooperation and collaboration with other organizations involved with the conservation of marine mammals and Arctic issues be maintained at current levels and, if budget decisions allow and if consistent with any Strategic Plan, efforts to increase cooperation and collaboration be pursued.

[PRP18-RC95] The Panel **notes** that the budget allocation for communications and outreach was higher than that for the Scientific Committee in the 2017 and 2018 budgets and higher in the forecast budget for 2020.

CHAPTER 3 – COMPENDIUM OF RECOMMENDATIONS AND CONCLUSIONS OF THE PANEL

In this chapter (Table 9), conclusions and recommendations of the Panel are listed and assigned a colour code as follow:




- Conclusions and recommendations on aspects of the **organizational motivation** are in **blue** . These are:
 - Mission
 - Culture
 - Incentive/rewards
- Conclusions and recommendations on aspects of the **organizational capacity** are in **orange** . These are:
 - Strategic leadership
 - Structure
 - Human resources
 - Financial management
 - Infrastructure
 - Project management
 - Process management
 - Inter-organizational linkages
- Conclusions and recommendations on aspects of the **organizational performance** are in **green** . These are:
 - Effectiveness
 - Efficiency
 - Relevance
 - Economic
 - Financial viability

TABLE 9 - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

General criteria	Detailed criteria	Conclusions and recommendations
0. Overall objectives	0.1 Is NAMMCO meeting its overall objectives?	<p>[PRP18-RC1] The NAMMCO Agreement includes an objective, which the Panel finds that the Commission has met, as it has contributed "<i>through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic</i>".</p> <p>[PRP18-RC2] However, the Panel believes that the NAMMCO's aspirations are much more ambitious. For example, the Preamble to the Agreement further defines the vision of NAMMCO's members. This vision includes a variety of goals that can be seen as related to the objective of the Agreement including:</p> <ul style="list-style-type: none"> • Optimum utilization of the living resources of the sea; • Adherence to general principles of international law; • Enhanced cooperation on research on marine mammals and their role in the ecosystem, utilizing, where appropriate, multi-species approaches and considering the effects of marine pollution and other human activities; • The development of management procedures that account for the relationship between marine mammals and other marine living resources; • Adherence to the general principles of the conservation and sustainable use of natural resources as set out in the report of the World Commission on Environment and Development; and, • An understanding that regional bodies in the North Atlantic can ensure effective conservation, sustainable marine resource utilization, and development with due regard to the needs of coastal communities and indigenous people. <p>Some of these same goals are reflected in a statement, that is quoted above, that appears on the website on the "<i>About NAMMCO</i>" page, and that has been ratified by all of the members of the Commission. That statement, which reiterates and builds upon objectives in the Preamble, includes the following as goals:</p> <ul style="list-style-type: none"> • Developing effective conservation and management measures for marine mammals; • Protecting the rights and needs of coastal communities to make a sustainable living from what the sea can provide; • Developing those conservation and management measures using the best available scientific evidence and user knowledge; and, • Taking into account the complexity and vulnerability of the marine ecosystem. <p>These goals are also included in the Nuuk Declaration, a statement issued by the members of NAMMCO to mark the 25th Anniversary of the organization.</p> <p>Finally, it is clear from the discussions within the Council and NAMMCO's various subsidiary bodies that NAMMCO's members also want the organization to be seen as a credible and well-regarded science-based regional institution.</p> <p>[PRP18-RC3] As discussed in Section 2.4 of Chapter 1, the Panel adopted additional criteria to guide its work. One of those additional criteria focuses on whether NAMMCO has identified and adopted a clear strategic direction and done the planning and put in place the mechanisms that will allow it to attain its goals. With these additional criteria in mind, and measuring NAMMCO's performance against these more clearly defined objectives, the Panel concludes that while NAMMCO has performed reasonably well, there is room for improvement. Below the Panel makes a number of specific recommendations on how the Commission could improve various aspects of its performance. These recommendations have been consolidated in Chapter 3.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

General criteria	Detailed criteria	Conclusions and recommendations
0. Overall objectives <i>CONTINUE</i>	0.1 Is NAMMCO meeting its overall objectives? <i>CONTINUE</i>	[PRP18-RC4] The Panel also recommends that NAMMCO develop and implement a Strategic Plan to help it focus its efforts and better guide decision-making across the organization. In developing its Strategic Plan, the Commission will need to clearly define its objectives, drawing upon the objective set out in the NAMMCO Agreement as informed by the Preamble to the Agreement as well as, perhaps, more contemporary documents such as the Nuuk Declaration and the statement on the NAMMCO website that is discussed above. The Strategic Plan should also define priorities for the organization to help decision-makers with difficult choices among competing demands. In addition to setting priorities, the Strategic Plan should identify long- and short-term goals for the organization. These should be accompanied by a multi-annual budget that would allow a coherent use of available financial and human resources. Guidelines on how to deal with contingencies, including financial and staffing aspects of NAMMCO should also be drafted. See sections 2.7.1.2 and 2.7.1.3 (detailed criterion 6.1.1) in this Chapter for more on these aspects. It should also include a mechanism for the regular review of whether these goals have been attained or whether the organization is still on the path for achieving them. Also, it should provide for periodic consideration of whether these goals continue to be the right ones. The Panel believes that, if properly implemented, the ongoing SWOT analyses of the Council, its subsidiary bodies and the Secretariat will provide useful input into the Strategic Plan. Finally, as a public institution, NAMMCO should develop its Strategic Plan as transparently as possible and invite the participation of relevant stakeholders in the process. The Panel encourages the Commission to consider recommendations included throughout this report and consolidated in Chapter 3 when developing its Strategic Plan. The Panel has included references to other specific issues and recommendations related to the development or implementation of a Strategic Plan in the following sections of this Performance Review: 2.2.1.3 (PRP18-RC6), 2.2.2.3 (PRP18-RC8), 2.2.3.15 (PRP18-RC25), 2.2.6.15 (PRP18-RC38), 2.4.1.3 (PRP18-RC54), 2.5.1.3 (PRP18-RC55), 2.5.1.6 (PRP18-RC57), 2.6.3.3 (PRP18-RC68), 2.7.1.3 (PRP18-RC71-78), 2.7.2.3 (PRP18-RC80, PRP18-RC83, PRP18-RC86), and 2.8.2.9 (PRP18-RC94). Some of the broad issues for consideration include: i) explicitly defining the geographical scope of the application of the Agreement including whether it extends beyond the EEZs of member countries, taking account of marine mammal species ecology (including their ranges), ii) expanding NAMMCO membership to include other countries bordering the North Atlantic that harvest marine mammals, iii) identifying and prioritizing the stocks to be managed by NAMMCO; iv) updating and implementing a communications strategy that reflects the objectives of the organization; v) securing sufficient resources to allow the Commission to meet its goals; and, vi) strengthening the capacity of the Secretariat to support the work of the Commission (see also section 2.7.1.3). At the same time, the Panel believes that NAMMCO should consider developing clearer operational guidelines related to working methods of all NAMMCO subsidiary bodies.
AREA 1 – CONSERVATION AND MANAGEMENT		
1.1 Status of marine mammal stocks	1.1.1 Status of marine mammal stocks under the purview of NAMMCO. 1.1.2 Trends in the status of those stocks.	[PRP18-RC5] The Panel believes that NAMMCO has contributed to improving knowledge on the status of marine mammal species and stocks in the North Atlantic by stimulating scientific discussions and research. The Panel also recognizes that the NAMMCO Council has helped to improve the status of some populations (e.g. belugas, narwhals, and walrus in Greenland). However, the Panel notes with some concern that: (1) several assessments are very old (e.g. ringed seal: 21 years, long-finned pilot whale: 20 years, humpback whales: 9-15 years depending on stocks) or they are becoming sufficiently old enough not to be reliable for management purposes (e.g. fin whale: up to nine years depending on stocks, minke whales in WG: 8 years). Even the newest assessments are based on some rather old abundance estimates (e.g. estimates of various beluga and narwhal stocks are 5-10 years old.) (2) hunts still occur on stocks for which abundances are identified as “declining” (10 stocks) or of “unknown size and trend” and “unknown trend” (8 stocks), or for which only a single abundance estimate has been obtained (16 stocks), or that are of “unknown size” but assessed as “increasing” or “stable” (see section 2.2.1.1 for full details), or classified as ‘no assessment but substantial removals’. Depending on the level of catches and the rate of decline or the uncertainty of the guestimate on their actual abundance, this approach may not be precautionary. (3) the Council has endorsed the GROM Working Group recommendations.

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 1 – CONSERVATION AND MANAGEMENT (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
1.1 Status of marine mammal stocks <i>CONTINUE</i>	1.1.1 Status of marine mammal stocks under the purview of NAMMCO. 1.1.2 Trends in the status of those stocks. <i>CONTINUE</i>	<p>(4) in some occasion, the Management Committees did not endorse Scientific Committee recommendations (e.g. proper bycatch and abundance and distribution data, frequency of surveys, stock structure, quotas and seasonal closures, etc.);in some occasion, Member Countries did not implement some recommendations or implemented them after major delays;</p> <p>(5) the Scientific Committee does not have a transparent systematic procedure for evaluating species and stocks (e.g. similar to the IWC procedure used to carry out <i>Implementation Reviews</i> under the RMP and the AWMP) and, until the NAMMCO Council Meeting in 2018, the Management Committees have not had, a systematic process for evaluating the implementation of the management measures against defined reference points (see also section 2.2.5.3, PRP18-RC27 and PRP18-RC28). This impeded attempts to follow the fate of any recommendation of the Scientific Committee until 2018. This seems an inefficient way to work and it may lead or have led to a sub-optimal use of human and financial resources.</p> <p>The Panel views these issues as important components of NAMMCO's credibility as a resource management organization. Therefore, it urges Member Countries to apply the required level of precaution and recommends that:</p> <p>(1) populations with observed declining trends and subject to hunting (e.g. hooded seals in Greenland Sea, grey and harbour seals in Iceland, ringed seals in Svalbard, grey seals in Trøndelag-Nordland, fin whales, humpback whales and white-beaked dolphins in West Greenland, minke in Icelandic coastal waters), as well as a number of poorly known stocks that are affected by direct and indirect takes (e.g. bearded seals in West and East Greenland, bearded seals in Svalbard, killer whales in West and East Greenland, possibly white-sided dolphins in Faroe Islands, Harbour porpoise in Norwegian waters) are given the proper attention;</p> <p>(2) all these cases be fully reconsidered as a matter of priority to (a) confirm that hunts are sustainable, (b) solve all inconsistencies and (c) produce and make publicly available, in a simplified manner, all necessary data that can confirm or otherwise that hunts do not harm these stocks;</p> <p>(3) the Council work with other relevant international and national authorities to develop a plan to help the Scientific Committee implement the research recommendations from the GROM working group on 'abundance estimates', 'stock identity', and 'movement and distribution' assigning high priority and funding to this work;</p> <p>(4) the Council implements PRP18-RC28 (section 2.2.5.3) on developing a clear and transparent working methods on interactions between Committee's;</p> <p>(5) recommended management actions be timely implemented by Member Countries as they are based on the best scientific advice available at the time that the recommendation is made;</p> <p>(6) NAMMCO Scientific Committee establish, with the support of the Secretariat, a systematic procedure to assess species and stocks. In order not to duplicate efforts and streamline existing approaches, this procedure should also codify the way NAMMCO Scientific Committee interacts with other bodies, such as the Scientific Committee of the IWC, various working groups of ICES and relevant Canadian research institutes and departments. This includes the adoption by the Council of a work plan to tackle the most urgent cases in terms of data collection and assessments, also taking into account the ageing of available abundance estimates. The Panel notes the positive improvement made at the last meeting of the Management Committees and the Council (2018) with the introduction of the list of "<i>Recent proposals for Conservation and Management and research recommendations</i>" as a tool to assess progress made on recommended conservation and management measures.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 1 – CONSERVATION AND MANAGEMENT (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
1.1 Status of marine mammal stocks <i>CONTINUE</i>	1.1.1 Status of marine mammal stocks under the purview of NAMMCO.	<p>[PRP18-RC6] In general, the Panel recommends that the Council, when developing a Strategic Plan that details the objectives, goals and priorities for NAMMCO, include principles on prioritization of research and advice on species and stocks in relation to its objectives and targets (see sections 2.2.1 and 2.1, respectively).</p> <p>[PRP18-RC7] In preparing this review, the Panel found that some of the information about species and stocks that is included on the NAMMCO official website, is incorrect. The Panel was informed that the Scientific Committee has agreed to proof-read all scientific and technical information that is on the website. However, there is no formal procedure to carry out such an important task. Therefore, the Panel recommends that NAMMCO established a formal procedure to review and update the NAMMCO website regularly. The Panel suggests that all Committees, together with the Secretariat, periodically review and endorse their relevant sections, including all figures and tables. In particular, the Panel notes:</p> <ol style="list-style-type: none"> (1) that trends of abundance of marine mammal populations and their conservation status are presented on the website in an inconsistent manner. This is true between and within species, with inconsistencies on: (a) how the same information on different species is presented and (b) what is presented for the various populations within a species, including information on abundance estimates and trends. The Panel recommends that an editorial effort is made to guarantee a consistent approach in presenting information on trends of distribution and abundance for all species and their populations. (2) That the color-coding of the assessments' tables presented online and the various geographic areas there listed are potentially confusing. In terms of the definition of color categories in the stock assessments tables, the Panel believes that categories "light blue" and "orange" need clarification. Both categories, are defined using the wording "<i>no assessment, but substantial removals</i> ...". This wording leaves the reader believing that some quantitative assessment to establish reference points and evaluations of whether those removals are having an effect on populations has been made. However, all this would entail a proper assessment of the population, which is negated by these definitions themselves. The wording "<i>substantial removals</i>" here is, therefore, misleading and the Panel recommends changing it and clarifying whether these are quantitative or qualitative categories and what type of data was used to define the level of removals. (3) That, in terms of names of geographical areas, it would be beneficial to establish an official nomenclature to avoid confusion and suggests that the Scientific Committee and the Secretariat should work together to address this issue. (4) That tables on stocks, would benefit from some clarity when presenting assessment made solely by NAMMCO, assessments made in collaboration with other organizations (e.g., International Council for the Exploration of the Sea (ICES) working groups, IWC, JCNB, etc.) and assessments made only by other organizations. The Panel notes that it would be very useful to also report on the NAMMCO website assessments made entirely by others, if then adopted or used by the NAMMCO Scientific Committee to provide advice to the Council; however, some note would be required to explain the process. (5) Some inconsistency in the treatment of some known stocks (identified by the Panel in purple in Table 1, which are coded as "light blue" stocks or even missing from the website tables). In particular - given the existing knowledge in relation to direct and indirect takes of killer whales and white-beaked dolphins in the North Atlantic, harbour porpoises in Greenland and Norway and harbour and grey seals in Greenland – the Panel recommends that these stocks be reconsidered and, if necessary, classified as 'orange' ('<i>no assessment but substantial removals</i>'). <p>Other issues with the information on marine mammal species on the website, including several incorrect references to published reports in relation to the most recent assessments and missing species and populations (i.e., the Greenlandic grey seal, which is a new species since 2009, and the Greenlandic stock of the harbor seal).</p>
	1.1.2 Trends in the status of those stocks. <i>CONTINUE</i>	

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 1 – CONSERVATION AND MANAGEMENT (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
1.2 Ecosystem approach	1.2.1 Extent to which NAMMCO advice takes into account and incorporates an ecosystem approach to fisheries management.	<p>[PRP18-RC8] The Panel notes that, since its inception, NAMMCO has shown an interest in applying the 'Ecosystem approach' to management. However, given the complexity of the matter, very little progress has been made. This is a trait common to other IGOs and international scientific bodies (e.g. IWC, Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), etc.). In a broader consideration of the ecosystem approach, the NAMMCO Scientific Committee has been asked, from time to time, to look at the effects on marine mammal populations of climate change, environmental factors, tourism, fishery bycatch, fishery competition, seismic surveys and shipping. The Panel notes that the Scientific Committee did provide advice on some these matters. In spite of efforts to develop and implement a work plan on how to incorporate the ecosystem approach to management into NAMMCO's work, the Panel is of the opinion that the NAMMCO Scientific Committee has not had sufficient resources to pursue this goal. All efforts have been delegated to national and EU funded programmes. The Panel recognizes both the importance and the complexity of integrating an ecosystem approach into the management of marine mammals. It therefore recommends that in developing its Strategic Plan, the Council give careful consideration to the role of the Commission in developing a model for applying an ecosystem approach to the management of marine resources given all relevant factors including (a) the complexity of the issues, (b) the work being done by other bodies (for example, the IWC, CCAMLR and ICES), (b) the availability of resources for NAMMCO to pursue this work and other NAMMCO priorities. This would allow the correct use of financial and human resources.</p> <p>[PRP18-RC9] With regard to the bycatch issue, the Panel notes that within NAMMCO there are two working groups looking at this issue: the Scientific Committee (BYC WG) and the Council (BYCEL WG, dealing with animal welfare considerations). The Panel agrees with the Scientific Committee's view that accurate estimates of total removals are essential for the assessment of all species. It recommends that accurate estimates of bycatch are provided in a timely manner for the assessment of all populations of marine mammals subject to hunts. The Panel also strongly encourages all NAMMCO Member Countries to maintain or proceed with the implementation of national bycatch monitoring systems based on independent observers as appropriate. The Panel also strongly encourages Greenland "to investigate the degree to which bycatch is reported as catch".</p> <p>[PRP18-RC10] The Panel also has not found that NAMMCO has made any explicit efforts to take account of the harmful impacts of others anthropogenic activities, such as, for example, underwater noise and whale and seal watching, on marine mammal stocks and ecosystems and recommends that the Scientific Committee address this issue as appropriate.</p>
	1.2.2 Extent to which NAMMCO advice takes into account climate and environments factors.	
	1.2.3 Extent to which NAMMCO advice takes into account the potential impact of non-hunting activities on the conservation status of stocks (tourism, shipping, fisheries bycatch, fishery competition).	
1.3 Data collection and sharing	1.3.1 Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions (e.g. National Reports, removals, catch, bycatch, culling and any other removal) data, sightings and effort survey data).	<p>[PRP18-RC11] The Panel considers that NAMMCO's agreed formats, specifications and timeframes for data submissions are sufficient for NAMMCO to achieve its scientific and management objectives for marine mammals in the North Atlantic, provided that the existing standard templates (e.g. on reporting catch, by-catch and strandings) are used and the required level of research is maintained and, to the extent practicable, complete and accurate data on catches and other removals continue to be collected.</p> <p>[PRP18-RC12] The Panel notes that there are many hunts for which Struck & Lost data are not reported or are not well reported. The Panel acknowledges the work done on this issue by the Committee on Hunting Methods (CHM) and recommends that the NAMMCO Council encourage Member Countries to agree to a standard format for reporting and to implement better reporting of Struck & Lost data for inclusion in National Progress Reports and a future NAMMCO Catch database or in the current NAMMCO data spreadsheet.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 1 – CONSERVATION AND MANAGEMENT (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
1.3 Data collection and sharing <i>CONTINUE</i>	1.3.2. Extent to which NAMMCO Parties, individually or through NAMMCO, collect and share complete and accurate data concerning marine mammal stocks and other relevant data in a timely manner, including analysis of trends in hunting activities and abundance estimates over time.	<p>[PRP18-RC13] The Panel believes that NAMMCO is an important mechanism for improving the collection of data and data sharing in the region. It recommends that the Secretariat and the Chairs of relevant Committees work with other relevant IGOs (particularly the IWC) to avoid overlaps in deadlines and facilitate the data submission process (e.g. using similar systems).</p> <p>[PRP18-RC14] The Panel also supports the widest use of expert meetings and open workshops as they represent a very effective tool for improving data sharing and scientific and technical discussion in the NAMMCO region.</p>
	1.3.3. Extent to which NAMMCO Parties collect complete and accurate data on hunting activities (catch statistics, hunting effort, struck & lost).	<p>[PRP18-RC15] The Panel is of the view that the most serious gap in the collection of data on hunting activities concerns the validation of reported catches of quota species in Greenland. The Panel understands that of the four NAMMCO Member Countries validation of reported catches has been the most challenging for Greenland given the geographical spread and relative isolation of some of the hunting communities and the comparatively large number of hunted species. In this regard, the Panel notes that a “quality review” of the catch data provided by Greenlandic hunters is now performed yearly. The Panel recommends that to the extent practicable, this “quality review” of catch data provided by Greenlandic hunters be continued and improved.</p> <p>[PRP18-RC16] The Panel also recommends that the feasibility of implementing an electronic system for reporting catches of quota species (as has been done for non-quota species) be examined.</p> <p>[PRP18-RC17] Currently data on bycatch and strandings are inconsistently reported in the NPRs and NAMMCO data spreadsheet to various Committees, Working Groups. The Panel recommends that these data be reported in a consistent manner.</p> <p>[PRP18-RC18] With regard to Struck & Lost rates, the Panel notes that data is only available for approximately 1/3 of the marine mammal hunts conducted in the waters of NAMMCO member countries and agrees with the suggestion from the Scientific Committee that given the difficulty of obtaining such data, efforts should focus on those cases where more reliable struck and lost data are a priority for improving assessments that would make the most significant difference in terms of quota allocation. The Panel also notes the significant work done on this issue by the Committee on Hunting Methods including the preparation and distribution of a detailed document on this subject. However, the Panel expresses concern about the lack of an agreed standardised method and format to report struck and lost data and, as with the recommendations concerning bycatch and strandings above (PRP18-RC16 and PRP18-RC16), recommends that NAMMCO agrees, as soon as possible, to a standardised method and format to report struck and lost data. Because of the loss to the hunters when an animal is lost, in addition to issues of animal welfare, the Panel recommends that efforts to reduce Struck & Lost and to get reliable and accurate data on struck and lost data be continued.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 1 – CONSERVATION AND MANAGEMENT (continue)

General criteria	Detailed criteria	Conclusions and recommendations
1.3 Data collection and sharing <i>CONTINUE</i>	1.3.3. Extent to which NAMMCO Parties collect complete and accurate data on hunting activities (catch statistics, hunting effort, struck & lost). <i>CONTINUE</i>	<p>[PRP18-RC19] With regard to bycatch, the Panel notes that data is scarce and sparse and, therefore, bycatch rates are unknown for most fisheries in all Countries. Known cases of this as a threat to populations are harbour porpoises, harbour and grey seals particularly in Norway and Iceland. For most other species and stocks, data are not sufficient to draw conclusions. However, Article 6 of the Fish Stocks Agreement notes that states should be more cautious when information is uncertain, unreliable or inadequate. In addition, Article 6 provides that the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures. Therefore, the Panel recommends that monitoring of bycatch with the use of inspectors and electronic logbooks be continued and that where bycatch numbers are high, efforts to reduce bycatch also be continued. See also section 2.2.2.3 (PRP18-RC7 and PRP18-RC8) for additional recommendations on this matter.</p> <p>[PRP18-RC20] The Panel notes the low number of strandings reported and the absence of information on hunting effort and ship strikes in the NAMMCO data spreadsheet. Measures of hunting effort related to catches of some species could be obtained relatively easily from analyses of hunting licenses issued, logbooks and inspection and observation reports and interviews with hunters. The Panel recommends that ship strikes be reported more consistently.</p> <p>[PRP18-RC21] Finally, with regard to the Greenlandic monitoring system of take, the Panel notes that increasing wildlife officers to collect appropriate data on takes does not seem impossible. The Panel recognises that such action would require commitments of funds for training new officers and maintaining their salaries. However, the Panel suggests that Greenland seriously considers this option as a medium or long-term solution, in the context of its priorities or related activities.</p>
	1.3.4. Extent to which such data are gathered by NAMMCO, shared among Parties and used in assessment.	<p>[PRP18-RC22] The Panel concurs with the views expressed by 20 of the 24 survey respondents that NAMMCO's sharing of data related to marine mammal hunts and its use in assessment is at least "good". It also notes that proper planning of marine mammal species assessments is an efficient way to involve Member Countries in data sharing and exchange.</p> <p>[PRP18-RC23] The Panel recommends that hunting data gathered by NAMMCO continue to be shared among NAMMCO member countries as well as with relevant scientists from non-member countries and IGOs, as appropriate. To this end, the Panel also recommends the establishment of a proper searchable 'NAMMCO catch database' and development of the necessary data sharing procedures and confidentiality agreements. The Panel stresses the importance that the official 'NAMMCO catch database' contains the same data used by Member Countries for their assessment. Central databases are key for proper management of wild marine resources, particularly those on mortality data and abundance and distribution. Therefore, the Panel believes that NAMMCO should also consider any future NAMMCO catch database include all human-induced mortality (i.e., bycatch and ship strikes) and a sighting database. NAMMCO could explore the possibility to carry out these efforts in cooperation with other international organizations that are already managing similar databases (e.g. ICES, IWC, etc.). See also [PRP18-RC25] and [PRP18-RC87].</p>
	1.3.5. Extent to which NAMMCO is addressing any gaps in the collection and sharing of data as required.	[PRP18-RC24] The Panel notes that there are gaps in many aspects of data collection related to marine mammal hunts in NAMMCO member countries and that these are of varying significance. The Panel understands that the manner and degree to which these gaps are or can be addressed is a function of a number of issues, including the perceived stock status, the importance of the issue to producing improved assessments and possible increased quotas, and the ease, difficulty, practicality or cost of addressing the issue. Given limited budgets, the Panel recommends that the Council, on a regular basis, review priorities given to addressing identified gaps in data collection. It also recommends that Member Countries consider timely implementation of all relevant recommendations from the Council and the Management Committees.

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 1 – CONSERVATION AND MANAGEMENT (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
1.3 Data collection and sharing <i>CONTINUE</i>	1.3.5. Extent to which NAMMCO is addressing any gaps in the collection and sharing of data as required. <i>CONTINUE</i>	[PRP18-RC25] As a general suggestion pertaining to criteria 1.3.1-1.3.5, 2.2.1 and 2.2.2, the Panels also recommends that in future performance reviews, these detailed criteria are reconsidered to avoid duplication and, possibly, to better evaluate all steps of “data sharing” and its milestones, by assessing them separately. In particular, the Panel suggests that the use of a standard template, respects for deadlines, data collection, transmission to central administration, transmission of data from central administration to NAMMCO Secretariat, and creation and maintenance of appropriate NAMMCO databases, be considered. In doing this, the Panel recommends the inclusion and revision of the current NAMMCO data sharing procedures in the discussion around a NAMMCO Strategic Plan, as data production and sharing is important for successful management. See also recommendation [PRP18-RC23] , which is relevant for a future NAMMCO database and [PRP18-RC87] .
1.4 Quality and provision of scientific advice	1.4.1. Extent to which NAMMCO produces or receives the best scientific advice relevant to the marine mammal stocks under its purview, as well as to the effects of harvesting, research, conservation and associated activities on the marine ecosystem.	[PRP18-RC26] The Panel notes that the scientific production of NAMMCO has positively evolved throughout NAMMCO’s history. The Panel notes that the advice received by the NAMMCO Council, the Management Committees and Member Countries from the Scientific Committee is of good scientific quality. The Panel notes that NAMMCO Member Countries have approved an increase in the number of national experts attending the Scientific Committee meetings from three to a maximum of six national delegates. However, it also notes that currently none of the Member Countries send six scientists (Faroes: one; Greenland: five; Iceland: four; Norway: five). Given the increased number of requests for advice from the Council, the Panel recommends Parties take advantage of the new rule to the greatest extent possible. The Panel also suggests that, given the limited availability of experts on assessments of the sustainability of quotas, budgetary considerations, and the requirement in the NAMMCO Agreement that the Scientific Committee “ <i>utilize, to the extent possible, existing scientific information</i> ”, NAMMCO investigate a more structured cooperation with the IWC Scientific Committee and a more robust use of external expertise.
1.5 Quality and provision of management advice	1.5.1. Extent to which NAMMCO produces the best management advice relevant to the marine mammal stocks under its purview based on the best scientific advice available to ensure the long-term conservation and sustainable use of marine mammals by NAMMCO Parties.	[PRP18-RC27] The Panel notes that Criteria 1.4.1 and 1.5.1 are potentially duplicates, given that NAMMCO Scientific Committee activities are finalized to provide scientific advice for the sustainable use of marine mammals. It, therefore, recommends merging these two criteria in future Performance Reviews. [PRP18-RC28] The Panel is concerned about the process for developing and recommending conservation and management advice. As currently implemented, it can result in actions by NAMMCO that can be construed as a rejection of the best available scientific advice as developed by the Scientific Committee. In addition, a lack of clarity in the way that the process works appears to have created tension between participants in certain NAMMCO bodies. The series of events described above has caused some to raise questions about the roles and responsibilities of the various components of the Commission including the Council, the Management Committees and the Scientific Committees. These questions include whether the MCC was acting beyond its authority by, for example, seeking to substitute its judgment for the judgment of the Scientific Committee concerning the validity of the criteria to be used to make a scientific determination about how to define the management units. Questions have also been raised about whether recommendations made by NAMMCO to its members about the conservation and management of marine mammals could be made solely to protect hunting interests without regards to impacts on the sustainability of a stock. These kinds of perceptions can damage the credibility of the Commission. The Panel recommends that NAMMCO take steps to eliminate the chances that they will occur.

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 1 – CONSERVATION AND MANAGEMENT (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
1.5 Quality and provision of management advice <i>CONTINUE</i>	1.5.1. Extent to which NAMMCO produces the best management advice relevant to the marine mammal stocks under its purview based on the best scientific advice available to ensure the long-term conservation and sustainable use of marine mammals by NAMMCO Parties. <i>CONTINUE</i>	<p>[PRP18-RC29] The Panel also recommends that the Council develop rules of procedure that define the relationship between the Management Committees and the Scientific Committees and how they will interact. These rules should confirm the particular areas of responsibility of the Management Committees and the Scientific Committees. They should also acknowledge the overlap in their work. These rules should address the Management Committees' use of the advice of the Scientific Committee in the development of conservation and management measures for NAMMCO members. The Panel believes that it would be better for NAMMCO if it avoids circumstances under which a Management Committee decides that it will not recommend the advice provided by the Scientific Committee to the relevant member(s) in a conservation and management measure. In the unusual circumstance in which a Management Committee does not adopt the advice of the Scientific Committee, the Management Committee should explain the reasons why clearly and transparently. The Panel concludes that the Scientific Committee would be better able to provide advice that considers the management objectives that are important to NAMMCO and its members, if the Management Committees would identify relevant management objectives when formulating recommendations concerning scientific research. Providing this information would help to eliminate situations in which the Scientific Committee provides advice that does not take into account relevant factors.</p> <p>[PRP18-RC30] Panel also recommends that the Management Committees modify the language used to describe their response to the advice of the Scientific Committee. Currently, the Management Committees "<i>endorse</i>" or choose to "<i>not endorse</i>" Scientific Committee advice. This can be viewed as suggesting that the Management Committee has evaluated and made a decision about the quality of the information provided. The Panel suggests that instead the Management Committees should consider using "<i>supporting</i>" or "<i>noted, but not supporting</i>".</p>
	1.5.2. Extent to which NAMMCO has applied a Precautionary Approach [as set forth in Article 6 of the 1995 UN Fish Stocks Agreement, including the application of precautionary reference points].	<p>[PRP18-RC31] In the view of the Panel, NAMMCO and its members have recognized the importance of trying to adhere to at least some of the elements of the precautionary approach as that approach is set out in the UN Fish Stocks Agreement. However, the Panel believes that effort in support of one significant component of the precautionary approach is largely missing: the development of stock-specific reference points and associated management actions that will be automatically taken if a reference point is exceeded. This is an essential component of the precautionary approach, and, while noting that the 2005 Icelandic management plan for grey seal stock and Norway's 2011 management plan for grey and harbour seals do address this issue as do the reference points and management actions for hooded seals, the Panel strongly recommends that NAMMCO initiate work to determine how it can better support its members in using this tool in the management of marine mammal resources. Several of the regional fisheries bodies have had extensive consultations regarding the application of the precautionary approach, and some have developed processes for its implementation. As NAMMCO is unique, the Panel recognizes that it needs to establish its own process for contributing to the implementation of the precautionary approach by its Members. Nevertheless, the Panel believes that it would be useful to have the development of that process be informed by the experiences of other regional fisheries bodies. NAMMCO should also rely upon the lessons of the WGHARP in developing its framework approach for the management of harp and hooded seals.</p>
1.6 Adoption of Conservation and management measures	1.6.1. Extent to which NAMMCO Parties have adopted and enforced management and conservation measures proposed by NAMMCO.	<p>[PRP18-RC32] The Panel finds that NAMMCO members have, for the most part, adopted the conservation and management measures proposed by the Commission, although there have been some instances in which they have not. For purposes of transparency and maintaining the credibility of the organization, the Panel believes that it is imperative that instances of not implementing NAMMCO advice should be kept to a minimum, or even better, eliminated. If a NAMMCO Member Country decides that it must choose not to implement or fully implement a recommendation, the Member Country should publicize that decision, including with a public notification to the Council that includes a detailed explanation of why the Member Country has chosen not to implement the measure and to detail what measures the member intends to take instead. The Member Country should also identify whether any substitute action is expected to have the same impact as the proposed measure.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 1 – CONSERVATION AND MANAGEMENT (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
1.6 Adoption of Conservation and management measures <i>CONTINUE</i>	1.6.2. Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice.	<p>[PRP18-RC33] The Panel recommends that all NAMMCO members maintain robust practices for involving relevant stakeholders in the process of implementing NAMMCO advice. This will lead to better implementation of NAMMCO's recommendation and enhance NAMMCO's credibility. The Panel finds that Greenland engages resource users (hunters) on implementing NAMMCO advice. This view found support from at least one of the respondents to the survey. Greenland also considers traditional knowledge in the implementation process. The Panel also finds that Iceland has a policy of not engaging resource users in the implementation of NAMMCO advice. The Panel recommends, that Iceland find ways to engage resources users in the implementation of NAMMCO advice, as appropriate. The Panel notes that while some of the recommendations provided by NAMMCO may be purely based on science, many are not. Those would include many of the recommendations based on the work of the CHM. Even with respect to the implementation of recommendations based purely on science, choices will need to be made about how to implement and often information from stakeholders can usefully inform decision-making.</p> <p>[PRP18-RC34] The Panel notes that detailed criteria 1.6.2 ("Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice" in the area of "Adoption of Conservation and management measures") and 2.4.2 on the "Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice in the area of "Adoption of advice on Hunting Methods and transcription in legal instruments" are essentially the same. Therefore, the Panel suggests that, in future Performance Review, these criteria being merged.</p>
	2.4.2 Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice.	
	1.6.3. Extent to which consistent/compatible management measures have been adopted for shared stocks by NAMMCO parties.	<p>[PRP18-RC35] The Panel recommends that NAMMCO develop guidance for Members on how to come to an agreement on the management of shared stocks, including the allocation of allowable catch. So far, negotiating such an arrangement has not been necessary to ensure that marine mammal stocks that are harvested by more than one NAMMCO member are being managed appropriately. However, it is not unlikely that such an agreement will be necessary in the future. Having a framework for such discussions could facilitate resolution of any issues. It also allows NAMMCO Members to put in place rules that will ensure that the negotiations result in an allocation arrangement that has the sustainable management of marine mammals as a top priority.</p>
	1.6.4. Extent to which consistent/compatible management measures have been adopted for shared stocks by NAMMCO parties and non-NAMMCO Parties (e.g. Canada and Russia)	<p>[PRP18-RC36] The Panel finds that for most stocks of marine mammals that are hunted by both a NAMMCO Member and NAMMCO non-Member, current levels of removal are sustainable which suggests that the relevant management measures are consistent or compatible. However, the Panel is concerned that the Northeast Canada/Baffin Bay/West Greenland stock of ringed seals has not been assessed since 1996 and has significant removals. The Panel notes that there is no agreed venue, such as the JCNB for Greenland and Canada to collaborate on managing this stock. The Panel also notes that the Scientific Committee is tentatively planning to convene a ringed seal working group in 2020 or 2021. The Panel urges the Scientific Committee to hold the ringed seal working group as soon as possible but, in any case, no later than 2021 so that work on an assessment of this stock may be completed as quickly as possible. The Panel also urges NAMMCO to identify an appropriate forum for Greenland and Canada to engage in the management of this stock.</p> <p>[PRP18-RC37] The Panel also notes the work that has been accomplished by the JCNB and encourages Greenland and Canada to strengthen that cooperation and the swift adoption and implementation of management measures developed through that process.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 1 – CONSERVATION AND MANAGEMENT (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
1.6 Adoption of Conservation and management measures <i>CONTINUE</i>	1.6.5. Extent to which NAMMCO Parties have moved towards the adoption of conservation and management measures for previously unregulated takes, including new and exploratory hunting activities and bycatch.	[PRP18-RC38] The Panel notes that the expansion of the scope of NAMMCO's work has created new opportunities for its members to cooperate on marine mammal for which they are developing conservation and management measures. The Panel finds that NAMMCO Parties have, over the life of the Commission, moved towards the adoption of conservation and management measures for previously unregulated takes. However, for some species or stocks the process has been slow (e.g. beluga, narwhal and walrus), hampered by a lack of data (e.g. harbour porpoises, northern bottlenose, white-sided and white-beaked dolphins), and in some cases (e.g. East Greenland and West Greenland killer whales, Greenland and Svalbard bearded seals) has not resulted in the development of NAMMCO recommendations for conservation and management or the implementation of those recommendations after a decade or more of attention. The Panel recommends that as part of its efforts to develop a Strategic Plan, the Council consider how to make the process of developing conservation and management measures for stocks that have not been previously managed more efficient. This should include prioritizing stocks based on factors including the biological status of the stock ("unknown," "of concern," etc.) It may also include expanding NAMMCO's efforts to collect the data that is necessary to make determinations about which stocks are priorities and to conduct assessments of those stocks that are deemed priorities. In addition, Council, as part of its development of a Strategic Plan, may wish to consider expanding the level of support that the Secretariat can provide to the scientific enterprise, in the context of the more general recommendation that the Commission consider strengthening the capacity of the Secretariat to support its work (sections 2.1.3, PRP18-RC3.2; and 2.7.1.3, PRP18-RC69). See also section 2.7.2.1, detailed criterion 6.2.1 " <i>Extent to which NAMMCO is efficiently managing human and financial resources including those of its Secretariat</i> " (PRP18-RC80-86).
	1.6.6. Extent to which NAMMCO Parties have taken due account of the need to conserve marine biological diversity and minimize harmful impacts of hunting activities and research on marine mammal stocks and marine ecosystems.	[PRP18-RC39] The Panel finds that NAMMCO has done a significant amount of work on minimizing harmful hunting activities particularly concerning reducing the number of animals that are Struck & Lost and reducing the time to death of hunted animals. The Panel recommends that NAMMCO, through the CHM and other bodies, to continue this work and to try to identify other harmful hunting activities that can be mitigated. [PRP18-RC40] The Panel has not found any significant evidence that NAMMCO has specifically focused on the need to minimize harmful impacts on marine biological diversity. However, the Panel notes that NAMMCO has sought to implement an ecosystem approach to marine mammal management. See discussion in section 2.2.2 above. The Panel also has not found that NAMMCO has made any explicit efforts to take account of the harmful impacts of research on marine mammal stocks and ecosystems.
	1.6.7. Extent to which NAMMCO has proposed and Parties have adopted and are implementing effective rebuilding plans for depleted or overhunted stocks.	[PRP18-RC41] The Panel was unable to find any evidence that NAMMCO has adopted a rebuilding plan for any of the stocks that the Scientific Committee has found to be depleted. Nevertheless, the Panel notes that with respect to several stock including walrus, narwhal and west Greenland beluga, the adoption and enforcement of quotas by member nations has resulted in improvements to the status of the stock.

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 2 - HUNTING ACTIVITIES		
General criteria	Detailed criteria	Conclusions and recommendations
2.1 Status of safety and animal welfare issues	2.1.1. Status of safety, efficiency and animal welfare issues in all hunting activities under the purview of NAMMCO.	[PRP18-RC42] The Panel is of the view that NAMMCO has given a high priority and expended considerable human and financial resources to its work on the safety, efficiency and animal welfare issues in all hunting activities under its purview and that outputs from Committee on Hunting Methods, including those from the workshops and Expert Group Meetings, have been substantial. The Panel is of the view that the work of the Committee on Hunting Methods together with the approval of its recommendations by the Council and implementation of these recommendations by member countries is one of the key elements that have made NAMMCO a credible organization. The Panel recommends that the work of the Committee on Hunting Methods should continue as new information related to weaponry and hunting methods becomes available and, as the Council deems appropriate in relation to other NAMMCO priorities.
	2.1.2. Trends in the status of these issues in the review period.	[PRP18-RC43] Regarding criteria 2.1.2, the Panel is of the view that almost since its inception NAMMCO has continued to give high priority to its work on safety, efficiency and animal welfare issues in all hunting activities under its purview and that this has resulted in positive trends that have improved the status of these issues over time.
2.2 Data collection and sharing	2.2.1. Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions. (e.g. National Reports, TTD data and struck and lost data).	[PRP18-RC11] and [PRP18-RC12]
	2.2.2. Extent to which NAMMCO Parties collect representative and accurate data on hunting activities (catch statistics), hunting effort, struck & lost, TTD.	[PRP18-RC15] , [PRP18-RC16] , [PRP18-RC17] and [PRP18-RC18]
2.3 Quality and provision of advice on Hunting Methods	2.3.1. Extent to which NAMMCO produces the best advice on Hunting Methods relevant to the methods under its purview, with respect to safety, efficiency, animal welfare and struck and lost reduction.	[PRP18-RC44] The Panel notes that the Expert Group meetings and workshops have addressed issues concerning time-to-death (TTD), technical innovations in hunting methods and gear, weapons, ammunitions and ballistics, struck and lost, monitoring and hunter safety and training in the context of all hunting activities under the purview of NAMMCO.
	2.3.2. Extent to which NAMMCO cooperates internationally on these issues.	[PRP18-RC45] The Panel is of the view that NAMMCO has addressed issues related to hunting methods in a comprehensive manner and produced the best advice on hunting methods covering the hunts of all of its members. Inclusion of experts in a broad range of subjects from both NAMMCO member countries and non-member countries and the incorporation of traditional and local knowledge from hunters has resulted in advice from the Expert Group meetings and workshops that is practical and scientifically and technically based. The Panel reiterates its view that NAMMCO's work on hunting methods has produced substantial results and that this is one of the key factors contributing to NAMMCO's credibility.

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 2 - HUNTING ACTIVITIES (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
2.4 Adoption of advice on Hunting Methods and transcription in legal instruments	2.4.1. Extent to which NAMMCO Parties have adopted the advice on hunting methods given by NAMMCO.	<p>[PRP18-RC46] The Panel concludes that NAMMCO and its members have done a very good job of implementing the recommendations developed at the workshops and expert meetings organized by the CHM. While the Panel did not find evidence that all recommendations have been implemented, the Panel believes that such a result is to be expected. For one, NAMMCO members have limited resources and must prioritize the use of those resources based on their broader needs. Also, there can be competing policy goals that preclude the implementation of a particular recommendation. Finally, there are multiple ways in which these recommendations might be implemented.</p> <p>[PRP18-RC47] Under these circumstances, the Panel believes that it would be best for the NAMMCO members to be as transparent as possible about how they are responding to the various recommendations. This should include identifying the recommendations that are not being implemented and the reasons for not implementing them. The Secretariat has developed a spreadsheet that is helpful in understanding what has and has not been accomplished. However, the presentation of information in that spreadsheet could be more transparent. In cases where implementation of a recommendation is delayed or declined because of inadequate resources, particularly concerning the collection and analysis of data, the Panel encourages NAMMCO members to explore ways in which they can share resources and allow the work to be completed or to be completed more quickly. Increasing collaboration in this manner will ultimately benefit the sustainable management of NAMMCO resources. Also, transparency about how NAMMCO members intend to respond to recommendations will help to sustain the goodwill and credibility that NAMMCO has earned because of its work on hunting.</p>
	2.4.2. Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice.	See [PRP18-RC33] and [PRP18-RC34] .
	2.4.3. Extent to which legal instruments have been developed by the Parties for enforcing the advice.	<p>[PRP18-RC48] The Panel finds evidence that NAMMCO members have adopted legislation and regulations to implement NAMMCO advice as appropriate.</p> <p>[PRP18-RC49] The Panel recommends that relevant legislation and regulations be updated consistent with any new advice from the Committee on Hunting Methods.</p>
	2.4.4. Extent to which NAMMCO Parties have worked for and succeeded in reducing TTD and struck and lost.	<p>[PRP18-RC50] Based upon the information provided, the Panel concludes that NAMMCO has identified increasing IDR and minimizing TTD as goals. The Panel also concludes that while members have made significant improvements in IDR/TTD in many of the harpoon grenade whale hunts, there are still differences, some of which are significant, among the rates for these hunts and there is still room for improvement. To improve performance on these metrics, NAMMCO needs to continue its efforts to understand the reasons for the different rates in different hunts. Improved data collection and data analysis, particularly for several of the hunts in Greenland, is required.</p> <p>[PRP18-RC51] The Panel also shares the concerns that have been expressed by the CHM and others about the IDR/TTD and struck and lost rates for the rifle hunt of minke whales in Greenland. The evidence suggests that this hunt, by its nature, can never have "<i>an acceptable IDR/TTD rate</i>" and that its Struck & Lost rate will remain "<i>unacceptably high</i>". In addressing these limitations, Greenland must also take into account the apparently increased reliance on this hunt for the meat that it produces.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 2 - HUNTING ACTIVITIES (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
2.4 Adoption of advice on Hunting Methods and transcription in legal instruments <i>CONTINUE</i>	2.4.4. Extent to which NAMMCO Parties have worked for and succeeded in reducing TTD and struck and lost. <i>CONTINUE</i>	<p>[PRP18-RC52] The information reviewed by the Panel also demonstrates that NAMMCO has focused on gaining an understanding the number of animals that are Struck & Lost in various hunts and the cause of these events to reduce the level of Struck & Lost animals. For large whales, the data demonstrate that the number of animals Struck & Lost is low and that NAMMCO members have made progress in reducing those numbers. However, for small cetaceans, it is not possible to assess whether efforts to reduce the number of animals that have been struck and lost have, to date, had any impact. The requisite data is not available, or its quality is not very high. The Panel recommends that the CHM and the Scientific Committee continue to work to define better methods for collecting data from all hunts on the occurrence of Struck & Lost events and the circumstances surrounding those events. These efforts should continue to respond to the recommendations from the various workshop and expert group meetings. This Information is useful for providing better assessments, with reduced levels of uncertainty, and developing hunting guidance that reduces these occurrences.</p> <p>[PRP18-RC53] The Panel encourages the CHM to continue its practice of working with people representing a wide range of interests, including hunters, on these issues.</p>
AREA 3 - COMPLIANCE AND ENFORCEMENT		
3.1 Enforcement of hunting legislation	3.1.1. Extent to which NAMMCO monitors hunting activities and their compliance to national legislation and NAMMCO recommendations.	<p>[PRP18-RC54] NAMMCO and its members have established a two-part system for monitoring compliance with national laws. One part consists of the national monitoring programs developed by each of the Members. The Panel has not examined and did not comment on these programs. The other part is the "NAMMCO Observation Scheme". The Panel is concerned that the Observation Scheme does not provide benefits that are commensurate with its costs. Therefore, the Panel recommends that the Council use the ongoing review of the NAMMCO Observation Scheme as a catalyst for reform. The Panel believes that the first step in a reform effort should be to clearly define, in NAMMCO's overall Strategic Plan, NAMMCO's objectives for observing the hunts of marine mammals in NAMMCO's area. The Scheme currently establishes that its purpose "<i>is to provide a mechanism for NAMMCO to monitor whether decisions made by the Commission are respected.</i>" This purpose seems somewhat out of step with the NAMMCO Agreement as the Commission makes recommendations that are implemented at the discretion of the individual members. In establishing the objectives of the Observation Scheme, the Panel urges the Council to consider the costs of and benefits from the current scheme. To date, only two infractions have been reported in the 20 years that the Scheme has been in operation. It seems improbable that this accurately reflects the levels of compliance in NAMMCO's hunts. The cost of this effort has been 1.66 million NOK. The Panel doubts that the amount of hunting activity observed, along with the fact that hunters have advanced notice that particular hunts are being observed, allows for NAMMCO to obtain an accurate picture of how the hunt for a specific species in a particular manner occurs over time. The Panel recognizes that there may be benefits to NAMMCO that result from the fact that it monitors hunting activities. The Panel believes that those benefits quickly diminish and can become a liability if the mechanism for monitoring hunts is viewed as not providing an accurate portrayal of the hunts. If the Council determines that one of the objectives of the scheme is to obtain an accurate understanding of the level of compliance with national laws implementing NAMMCO recommendations, the Panel believes that significantly more resources will need to be devoted to the operation of the Observations Scheme. Given the many significant demands on the limited resources of the Commission, the Council may consider taking an alternative approach to compliance monitoring such as conducting regular audits of the inspection programs of each of the members and providing support for improving the functioning of those programs where appropriate. Finally, the Panel recommends that if the Commission is to continue to operate the Observation Scheme the Council explore ways of making the work done under the Observation Scheme more transparent. Currently, the only information on the NAMMCO website about the outcomes of the work under the scheme is contained in the reports of the CIO meetings. If the Council decides that continuing the operation of the Observation scheme is in the strategic interests of the Commission, it should also consider how to make the results of that work more easily accessible to stakeholders.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 4 – DECISION-MAKING

General criteria	Detailed criteria	Conclusions and recommendations
4.1 Decision-making	4.1.1. Extent to which resource users and stakeholders are involved in NAMMCO decision making. [<p>[PRP18-RC55] The Panel finds that the efforts of NAMMCO and its members to involve resource users in NAMMCO decision-making are important. Engagement with resource users expands the information that NAMMCO has for making decisions. In addition, NAMMCO's engagement with resource users also increases the transparency of NAMMCO's work and increases the credibility of the organization among those who participate. NAMMCO has also made important efforts to understand, and to the extent appropriate make better use of, user knowledge in the work of the Scientific Committee and in management decision-making. The Panel believes that NAMMCO could build upon work already begun to make additional progress that would benefit NAMMCO and its work. The Panel encourages NAMMCO to consider, in the process of developing a Strategic Plan, how it might appropriately expand the role of user knowledge in its work.</p> <p>[PRP18-RC56] The Panel also notes that other stakeholders have not generally been engaged in the work of NAMMCO.</p>
	4.1.2. Efficiency of NAMMCO in addressing critical issues in a timely and effective manner.	<p>[PRP18-RC57] The Panel finds that for some critical issues NAMMCO has been able to respond in a timely and effective manner. These include the development and adoption of various recommendations regarding hunting. However, as the Panel noted concerning Criteria 1.6.5 (...<i>adoption of conservation and management measures for previously unregulated takes</i>), in some cases it has taken more than a decade to respond to critical issues in part due to a lack of data or resources. The Panel reiterates that the NAMMCO Strategic Plan (PRP18-RC4) includes a process for prioritizing the stocks for which NAMMCO will improve data collection and prepare and recommend conservation and management measures.</p>
	4.1.3. Extent to which NAMMCO has transparent, consistent and adequate advice-making procedures that facilitate the adoption by Parties of conservation and management measures and measures related to hunting methods in a timely and effective manner.	<p>[PRP18-RC58] Generally, the Panel believes that the advice making procedures have not had an impact, either negative or positive, on the ability of the Parties to adopt conservation and management measures and measures related to hunting methods in a timely fashion. However, the Panel notes that throughout the conduct of its work it heard comments about language barriers created by the fact that NAMMCO works in English and recommends that the Commission consider whether there are viable ways to reduce or remove this barrier, including through the use of technology.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 5 – INTERNATIONAL COOPERATION

General criteria	Detailed criteria	Conclusions and recommendations
5.1 Transparency	5.1.1. Extent to which NAMMCO is operating in a transparent manner.	<p>[PRP18-RC59] The Panel is of the view that participation of observers at meetings of the Council and its subsidiary bodies is an important part of NAMMCO's transparency, accountability and credibility.</p> <p>[PRP18-RC60] With regard to documents, the Panel is aware that there is a considerable volume of material related to the functioning of the organization, including meeting documents, on NAMMCO's website. Much of this information is however password protected and for some material, including documents prepared by the Secretariat for use by the Panel, two passwords are required. The Panel is of the view that much, if not all of this material does not require access protection and recommends that this matter be reviewed with a view to increasing transparency. As part of this review the Council may wish to consider aligning its policy related to access protection to its documents with the Norwegian standard as to what would and would not be provided in response to a request under its "Freedom of Information Act". The Panel recommends that the results of such a review be made public.</p>
	5.1.2. Extent to which NAMMCO decisions and management advice, meeting reports, scientific advice upon which management advice is made, and other relevant materials are made publicly available in a timely fashion.	<p>[PRP18-RC61] The Panel also notes that there are other issues related to NAMMCO's use of password protection for some of its documents including the fact that there are no rules or guidelines that describe who and under what conditions passwords can be obtained as well as the lack of rules or guidelines related to how documents are determined to be publicly available or password protected. The Panel recommends that these issues be specifically addressed as part of the review recommended in the previous paragraph. A need for greater transparency was also addressed in sections 2.2.6.3 (PRP18-RC32), 2.3.4.2 (PRP18-RC47), 2.5.1.3 (PRP18-RC55) and 2.8.2.9 (PRP18-RC94).</p> <p>[PRP18-RC62] Given the above comments, the Panel considers that NAMMCO's transparency requires improvements; this could include a translation of key documents in English (e.g., relevant legislation), which should be available on the website.</p> <p>[PRP18-RC63] In terms of availability of reports, the Panel notes that NAMMCO procedures are in line with those of other IGOs and, therefore, acceptable.</p>
5.2 Relationship with non-NAMMCO Parties	5.2.1. Extent to which non-NAMMCO Parties have undertaken hunting activities in the NAMMCO Area.	<p>[PRP18-RC64] The Panel notes that depending on the interpretation on the actual area of competence of NAMMCO, the response to the question on whether non-NAMMCO Parties have undertaken or still undertakes hunting activities in the NAMMCO Area may vary from "no" to "yes". In any case, these hunting activities are regulated and managed under domestic laws or based on decisions made by the IWC.</p>
	5.2.2. Extent to which NAMMCO facilitates cooperation with non-NAMMCO Parties, including encouraging regional non-NAMMCO Parties to become Parties or to implement NAMMCO conservation and management measures voluntarily.	<p>[PRP18-RC65] The Panel believes that NAMMCO has made a reasonable effort to facilitate the cooperation with non-NAMMCO parties, but that some renewed effort could be made to increase the number of adhering countries. At a minimum, NAMMCO should aim to persuade those countries that are conducting hunts in the North Atlantic (i.e., Canada and St Vincent and the Grenadines) and the Russian Federation, which hunts in the adjacent Arctic region and that share some stocks (e.g. bearded seals, harp seals, ringed seals, beluga, etc.). The Panel notes that increasing the number of Member Countries could also increase the budget of the organisation, possibly allowing important resources for priority activities.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 5 – INTERNATIONAL COOPERATION (continue)

General criteria	Detailed criteria	Conclusions and recommendations
5.2 Relationship with non-NAMMCO Parties <i>CONTINUE</i>	5.2.3. Extent to which NAMMCO provides for action in accordance with international law and Agreement against non-NAMMCO Parties undermining the use of marine mammals, as well as measures to deter such activities.	<p>[PRP18-RC66] The Panel believes that there are no formal actions that NAMMCO can take under international law against non-NAMMCO members that are undermining the use of marine mammals. However, the Panel notes that NAMMCO has found other ways to try to address these issues, including its outreach and lobbying efforts.</p> <p>[PRP18-RC67] Given the nature of the NAMMCO Agreement, the Panel also believes that, for future performance reviews, this specific criterion should be either revised or dropped.</p>
5.3 Cooperation with other international organizations	5.3.1. Extent to which NAMMCO cooperates with other marine mammal management organisations and other international organisations dealing with marine mammal conservation.	<p>[PRP18-RC68] The Panel is of the view that NAMMCO's effort to cooperate with other relevant international organizations is important. The Panel recommends that such efforts be continued and regularly reviewed on an individual basis to determine whether they contribute to NAMMCO's efforts to meet its strategic goals. The Panel recommends that NAMMCO considers entering into formal arrangements on relevant scientific and technical matters. Cooperation with other relevant international organization should also be part of the NAMMCO Strategic Plan.</p> <p>[PRP18-RC69] As with activities of the Scientific Committee, the Panel recommends that postponement or reductions of efforts to cooperate with other relevant organizations should not be used as an ongoing solution to budget shortfalls.</p> <p>[PRP18-RC70] The Panel notes that ASCOBANS decided not to engage in any cooperation with NAMMCO on the organization of a harbour porpoise symposium in response to the invitation from the Norwegian Institute of Marine Research (IMR) and NAMMCO. It is the Panel understanding that ASCOBANS' decision not to work cooperatively with NAMMCO was not based on a concern about NAMMCO's scientific capability, but rather based on the position of some members in ASCOBANS about the hunting of marine mammals.</p>
AREA 6 – FINANCIAL AND ADMINISTRATIVE ISSUES		
6.1 Availability of resources for activities	6.1.1. Extent to which financial and other resources are made available to achieve the aims of NAMMCO and to implement NAMMCO's decisions.	<p>[PRP18-RC71] The Panel notes that in adopting its budget for 2018, the Council decided to postpone some activities of the Scientific Committee for one year and is of the view that implementation of such postponements should be done in a manner that minimizes any negative effects to the outputs and credibility of the Scientific Committee, which is a key element of NAMMCO's overall credibility (see criterion 7.1.2 for more comments on NAMMCO's credibility). The Panel is of the view that such postponement, particularly with regard to high priority issues should not be an ongoing solution to budget shortfalls. The Satellite Tagging Workshop that was postponed from 2018 may be important in this regard.</p> <p>[PRP18-RC72] With regard to the cuts that were made in all budget items for 2018 and 2019, the Panel notes that one reason for these cuts was that funding was required for relocation of the Scientific Secretary and hiring of a new Scientific Secretary. The Panel is of the view that a separate fund should have been previously established to cover such inevitable costs and that funding for such costs should not come from cuts to regular program components. This is simply poor budget planning.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 6 – FINANCIAL AND ADMINISTRATIVE ISSUES (continue)

General criteria	Detailed criteria	Conclusions and recommendations
6.1 Availability of resources for activities <i>CONTINUE</i>	6.1.1. Extent to which financial and other resources are made available to achieve the aims of NAMMCO and to implement NAMMCO's decisions. <i>CONTINUE</i>	<p>[PRP18-RC73] The Panel also notes that the Council has agreed that communications and outreach activities should be a priority and recommends that staffing be adjusted to reflect these priorities or others identified in the Strategic Plan. See also PRP18-RC80, PRP18-RC83, and PRP18-RC86. The Panel notes the apparent contradiction between the priority given to communications and outreach and the agreed substantial budget cuts for this activity however, the Council expressed the view that these cuts would not impair its core activities. The Panel believes that the substantial cuts to the budget for communications and outreach activities will certainly not advance NAMMCO's credibility in the view of other Arctic and North Atlantic organizations (see criterion 7.1.2 for more comments on NAMMCO's credibility).</p> <p>[PRP18-RC74] With respect to the general reserves, the Panel agrees that consideration should be given to how the general reserves may, as soon as possible, be rebuilt to the level agreed.</p> <p>[PRP18-RC75] The Panel notes that with only a few exceptions, NAMMCO Member Countries allocate sufficient national resources to implement the recommendations made by NAMMCO and is of the view that this is an important element of NAMMCO's credibility (see criterion 7.1.2 for more comments on NAMMCO's credibility). NAMMCO members are encouraged to maintain this situation.</p> <p>[PRP18-RC76] The Panel is aware that additional funding from sources other than Member Government contributions has been received and managed by the Secretariat. This includes funds for NASS, MMFR, publishing manuals and the holding of some workshops. The Panel has no information to evaluate the efficiency with which the Secretariat manages these funds but recommends rules or guidelines for the receipt of such funds be developed for managing these types of resources.</p> <p>[PRP18-RC77] In a broad sense, the Panel notes the allocation of budget resources to staff related costs together with staff travel and subsistence which averaged 71% of budget for the years 2017-2020 compared with an average expenditure of 4% for communications and outreach and 3% for the Scientific Committee for the same years. The Panel recommends that the relative proportions of budget allocations for these activities should be reviewed.</p> <p>[PRP18-RC78] Finally, the Panel is of the view that all of the issues referred to in this section should be dealt with in the context of a Strategic Plan the development of which is recommended in section 2.1.3 (PRP18-RC4).</p>
	6.1.2. Extent to which the schedule and organization of the meetings could be improved.	[PRP18-RC79] The Panel notes that the quality of the organization of NAMMCO meetings is adequate. It also notes that the current schedule poses some difficulties, especially in regard to the various Scientific Committee working groups and recommends that the Secretariat with the Scientific Committee chair and all conveners of all working groups examine alternative options (e.g. having the Scientific Committee in April/May and the Council in November), with a goal of giving more time to the Scientific Committee and its working groups to respond to Council's requests.
6.2 Efficiency and cost effectiveness	6.2.1. Extent to which NAMMCO is efficiently managing human and financial resources including those of its Secretariat.	[PRP18-RC80] The Panel notes that, despite the expressed need for an additional Scientific Secretary, the position of the existing Scientific Secretary has been vacant from May 1 to October 22, 2018 and that the recruitment panel agreed that the new Scientific Secretary will work only 85% of regular work time from the end of October 2018 to the end of June 2019. The Panel recognizes that the work of the Scientific Committee and Council functioned during this time in part because the General Secretary is a scientist, but there were significant tasks that could not be completed. The Panel is of the view that this was the result of the failure to hire a Scientific Secretary in a timely fashion. The Panel recommends that issues identified as a result of this situation and other personnel issues be addressed in accordance with any Strategic Plan that is developed.

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 6 – FINANCIAL AND ADMINISTRATIVE ISSUES (continue)

General criteria	Detailed criteria	Conclusions and recommendations
6.2 Efficiency and cost effectiveness CONTINUE	6.2.1. Extent to which NAMMCO is efficiently managing human and financial resources including those of its Secretariat. CONTINUE	<p>[PRP18-RC81] The Panel notes that the selection process for hiring a new Scientific Secretary resulted in the appointment of a person with no experience with NAMMCO or any aspects of marine mammal science including estimating population abundance and animal welfare. The Panel also questions whether the new Scientific Secretary's lack of experience with marine mammal assessments will not be helpful for assisting the Scientific Committee's required work on assessment (see also PRP18-RC5).</p> <p>[PRP18-RC82] The Panel also notes that the hiring of a Scientific and Communication Assistant might not be sufficient to implement NAMMCO's Communication plan. Given that communications and outreach receives the largest allocation of NAMMCO's program elements and the fact that communications and outreach activities are an essential component of establishing NAMMCO's credibility, NAMMCO should consider hiring someone with extensive experience and expertise in communications.</p> <p>[PRP18-RC83] The Panel heard a number of other comments and suggestions concerning the need for restructuring the Secretariat (see section 2.7.2.2 above) and suggests that these could more appropriately be addressed by the Finance and Administration Committee and the Council or a SWOT analysis, if one is to be carried out for the Secretariat. A SWOT analysis of the Secretariat should also include a review of the Staff Rules for the Secretariat and, again, the issue of restructuring the Secretariat should be part of the development of a Strategic Plan.</p> <p>[PRP18-RC84] The Panel also suggests that given the Council's appropriation of a high priority to using the website for communications and outreach activities, a review be undertaken to determine if the current outsourcing of work related to the NAMMCO website is the best and most cost effective way of achieving this.</p> <p>[PRP18-RC85] The Panel also recommends that an outside consultant be hired to examine and provide advice relative to the level of staff salaries and benefits, including in comparison to other IGOs, and other related issues.</p> <p>[PRP18-RC86] While the Panel received a lot of input on changes to the Secretariat, and that more input may be generated through the SWOT process for the Secretariat, the Panel does not believe that it is in a position to make meaningful and informed recommendations about how the Commission is managing its financial and human resources without an understanding of the Commission's strategic vision. Therefore again, the Panel recommends that NAMMCO should define, while developing a Strategic Plan, the relative priorities among various commission functions including science, communications, and outreach. The Strategic Plan should inform all decision making with respect to the work of the Commission including the allocation of human and financial resources.</p>
	6.2.2. Extent to which NAMMCO and NAMMCO parties are efficiently managing the data necessary for stock assessments [...] and [...] trends in hunters' safety and hunting efficiency,[...].	<p>[PRP18-RC87] As highlighted in recommendations PRP18-RC23 and PRP18-RC25, the Panel is of the view that a centralized database on stock assessments (abundance & removal data) and for the evaluation of trends in hunters' safety and hunting efficiency, is fundamental to providing repeatability and consistency in analyses and recommends that NAMMCO develops such a database as soon as possible. It also recommends development of a procedure that specifies, among other things, the level of accessibility to data within and outside NAMMCO, the data quality control process, and deadlines for data submission, among other things.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 7 – OUTREACH		
General criteria	Detailed criteria	Conclusions and recommendations
7.1 Visibility	7.1.1. Extent to which NAMMCO has developed and disseminated a clear overall message.	<p>[PRP18-RC88] The Panel finds that the Commission has developed a clear message about its mission, notes that there have been inconsistencies in how it has disseminated that message, but also notes that improvements in the website, creation of a Facebook page and development of the “NAMMCO Communication and Outreach Strategy” and the “NAMMCO Communications Plan 2017-2018” have been very important steps in the direction of improving the dissemination of NAMMCO’s message. The Panel urges the Commission to integrate the Communication and outreach strategy into a broader overall strategy for NAMMCO and notes that making the public aware of the work that NAMMCO is doing is important to enhancing the stature of the organization as a science organization and as an organization that supports the efforts of its members to sustainably manage marine mammal resource.</p> <p>[PRP18-RC89] The Panel also recommends continuing the practice of adopting shorter term (no more than two year) and more detailed “Communications and Outreach Plans” for implementing the strategy. It also recommends that the Commission adopt and implement quantifiable measures of the effectiveness of the Plan and of various tools that are used to implement the Plan including the website, the Facebook page and the Twitter feed. These measures should go beyond simply noting the number of hits. Furthermore, the Panels recommends that the Council ensure that the budget for implementation of the Communications and Outreach Plans is sufficient to meet the goals therein.</p>
	7.1.2. Extent to which NAMMCO has succeeded in establishing itself as a pre-eminent, effective and credible forum for the conservation and management of marine mammals in the Arctic and Northern Atlantic regions.	<p>[PRP18-RC90] The Panel is of the view that the outputs from the NAMMCO are substantial and substantive and have made it a credible forum for the discussion of the conservation and management of marine mammals in the Arctic and North Atlantic regions. These include the National Progress Reports, organization of conferences/symposia, workshops and Expert Working Groups, cooperation with other relevant organizations and the work of the Scientific Committee, Management Committees, Committee on Hunting Methods and Committee on Inspection and Observation. See criterion 5.2.2, section 2.6.2.4.</p> <p>The effectiveness of the organization included as part of Criteria 7.1.2 is addressed as part of the Panel’s response to Criteria 6 – Financial and administrative issues.</p>
	7.1.3. Extent to which NAMMCO has succeeded in establishing itself as credible source of information for all target groups [...] on all issues related to marine mammal conservation.	<p>[PRP18-RC91] The Panel considers that the review of the Commission’s credibility should include an assessment of how the products of the Commission are received, including by members, peers, stakeholders, and the academic community. This includes considering if the work is valued, relied upon or sought. NAMMCO’s credibility should also be considered throughout the full range of its mandate including outputs from the Scientific Committee, its Committee on Hunting methods and recommended regulatory measures with respect to sustainable management of marine mammals across the North Atlantic.</p> <p>[PRP18-RC92] In this context, the Panel notes the lack of quantitative information related to contacts with educational institutions, the frequency of contacts with parliamentarians and the media as well as the number of times that NAMMCO work has been used or cited by others. Many relevant examples of outreach efforts appear to have been <i>ad hoc</i>, opportunistic and involved single contacts as opposed to being components of a coordinated, prioritized and monitored communications and outreach strategy and implementation plan.</p>

TABLE 9 (continue) - LIST OF RECOMMENDATIONS AND CONCLUSIONS OF THE PERFORMANCE REVIEW PANEL

AREA 7 – OUTREACH (continue)		
General criteria	Detailed criteria	Conclusions and recommendations
7.1 Visibility <i>CONTINUE</i>	7.1.3. Extent to which NAMMCO has succeeded in establishing itself as credible source of information for all target groups, including media, politicians, IGOs and NGOs and educational institutions on all issues related to marine mammal conservation. <i>CONTINUE</i>	<p>[PRP18-RC93] Notwithstanding this, the Panel considers that the list of examples provided by the Secretariat related to cooperation with other marine mammal related organizations, together with invitations to participate in high-level conferences, international workshops and cooperation on surveys and population abundance estimates, is substantive and that this is reflected in the positive comments on NAMMCO's credibility that were voiced during the Panel's interviews with Member Country representatives, scientists, secretariat staff, IGOs and NGOs. It is the Panel's view that together, items on this list demonstrate that NAMMCO has attained a level of credibility among other organizations involved with Arctic issues and marine mammal conservation and that with respect to outputs from the Scientific Committee, the Committee on Hunting methods and recommended regulatory measures with respect to sustainable management of marine mammals across the North Atlantic its work is "<i>valued, relied upon and sought</i>". However, some of the survey responses noted that a lack of effective means for communication and of institutionalized lines of communication with other regional actors (e.g. Letters of Agreement and/or MoUs) may have reduced opportunities for cooperation and collaboration. Therefore, the Panel encourages NAMMCO to enter into formal agreements with relevant IGOs, aimed at achieving common scientific, conservation and management goals.</p> <p>[PRP18-RC94] The Panel understands that there is a linkage between the level of NAMMCO's outreach and communications efforts and the views of NAMMCO's credibility from external target groups such as journalists, Nordic politicians, and educators and that NAMMCO had no comprehensive communication and outreach strategy to address this until its adoption of such in April 2017. The Panel is of the view that the degree to which the communications plan for 2017-18 accompanying the communications and outreach strategy is implemented is primarily a budgetary decision that could, with increased funding and effort, result in enhancing the views of NAMMCO's credibility from some external target groups. The Panel believes that for the users of marine mammals, views of NAMMCO's credibility are more likely to be based on the transparency of NAMMCO's process for developing recommendations and the degree of their involvement in the national process for the development of regulatory measures. The Panel also believes that obtaining a positive view of NAMMCO's work (see section 2.6.3) from other organizations involved with the conservation of marine mammals and Arctic issues is important. The Panel recommends that, at a minimum, cooperation and collaboration with other organizations involved with the conservation of marine mammals and Arctic issues be maintained at current levels and, if budget decisions allow and if consistent with any Strategic Plan, efforts to increase cooperation and collaboration be pursued.</p> <p>[PRP18-RC95] The Panel notes that the budget allocation for communications and outreach was higher than that for the Scientific Committee in the 2017 and 2018 budgets and higher in the forecast budget for 2020.</p>

APPENDIX 1 - REVISED CRITERIA FOR THE PERFORMANCE REVIEW

AREA 1 – CONSERVATION AND MANAGMENT	
General criteria	Detailed criteria
1.1 Status of marine mammal stocks	<p>1.1.1 Status of marine mammal stocks under the purview of NAMMCO.</p> <p>1.1.2 Trends in the status of those stocks.</p>
1.2 Ecosystem approach	<p>1.2.1 Extent to which NAMMCO advice takes into account and incorporates an ecosystem approach to fisheries management.</p> <p>1.2.2 Extent to which NAMMCO advice takes into account climate and environments factors.</p> <p>1.2.3 Extent to which NAMMCO advice takes into account the potential impact of non-hunting activities on the conservation status of stocks (tourism, shipping, fisheries bycatch, fishery competition).</p>
1.3 Data collection and sharing	<p>1.3.1. Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions (e.g. National Reports, removals, catch, bycatch, culling and any other removal) data, sightings and effort survey data).</p> <p>1.3.2. Extent to which NAMMCO Parties, individually or through NAMMCO, collect and share complete and accurate data concerning marine mammal stocks and other relevant data in a timely manner, including analysis of trends in hunting activities and abundance estimates over time.</p> <p>1.3.3. Extent to which NAMMCO Parties collect complete and accurate data on hunting activities (catch statistics, hunting effort, struck & lost).</p> <p>1.3.4. Extent to which such data are gathered by NAMMCO, shared among Parties and used in assessment.</p> <p>1.3.5. Extent to which NAMMCO is addressing any gaps in the collection and sharing of data as required.</p>
1.4 Quality and provision of scientific advice	<p>1.4.1. Extent to which NAMMCO produces or receives the best scientific advice relevant to the marine mammal stocks under its purview, as well as to the effects of harvesting, research, conservation and associated activities on the marine ecosystem.</p>
1.5 Quality and provision of management advice	<p>1.5.1. Extent to which NAMMCO produces the best management advice relevant to the marine mammal stocks under its purview based on the best scientific advice available to ensure the long-term conservation and sustainable use of marine mammals by NAMMCO Parties.</p> <p>1.5.2. Extent to which NAMMCO has applied a Precautionary Approach [as set forth in Article 6 of the 1995 UN Fish Stocks Agreement, including the application of precautionary reference points].</p>
1.6 Adoption of Conservation and management measures	<p>1.6.1. Extent to which NAMMCO Parties have adopted and enforced management and conservation measures proposed by NAMMCO.</p> <p>1.6.2. Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice.</p> <p>1.6.3. Extent to which consistent/compatible management measures have been adopted for shared stocks by NAMMCO parties.</p> <p>1.6.4. Extent to which consistent/compatible management measures have been adopted for shared stocks by NAMMCO parties and non-NAMMCO Parties (e.g. Canada and Russia).</p> <p>1.6.5. Extent to which NAMMCO Parties have moved towards the adoption of conservation and management measures for previously unregulated takes, including new and exploratory hunting activities and bycatch.</p> <p>1.6.6. Extent to which NAMMCO Parties have taken due account of the need to conserve marine biological diversity and minimize harmful impacts of hunting activities and research on marine mammal stocks and marine ecosystems.</p> <p>1.6.7. Extent to which NAMMCO has proposed and Parties have adopted and are implementing effective rebuilding plans for depleted or overhunted stocks.</p>

AREA 2 - HUNTING ACTIVITIES	
<i>General criteria</i>	<i>Detailed criteria</i>
2.1 Status of safety and animal welfare issues	2.1.1. Status of safety, efficiency and animal welfare issues in all hunting activities under the purview of NAMMCO. 2.1.2. Trends in the status of these issues in the review period.
2.2 Data collection and sharing	2.2.1. Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions. (e.g. National Reports, TTD data and struck and lost data). 2.2.2. Extent to which NAMMCO Parties collect representative and accurate data on hunting activities (catch statistics), hunting effort, struck & lost, TTD.
2.3 Quality and provision of advice on Hunting Methods	2.3.1. Extent to which NAMMCO produces the best advice on Hunting Methods relevant to the methods under its purview, with respect to safety, efficiency, animal welfare and struck and lost reduction. 2.3.2. Extent to which NAMMCO cooperates internationally on these issues.
2.4 Adoption of advice on Hunting Methods and transcription in legal instruments	2.4.1. Extent to which NAMMCO Parties have adopted the advice on hunting methods given by NAMMCO. 2.4.2. Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice. 2.4.3. Extent to which legal instruments have been developed by the Parties for enforcing the advice. 2.4.4. Extent to which NAMMCO Parties have worked for and succeeded in reducing TTD and struck and lost.
AREA 3 - COMPLIANCE AND ENFORCEMENT	
<i>General criteria</i>	<i>Detailed criteria</i>
3.1 Enforcement of hunting legislation	3.1.1. Extent to which NAMMCO monitors hunting activities and their compliance to national legislation and NAMMCO recommendations.
AREA 4 – DECISION-MAKING	
<i>General criteria</i>	<i>Detailed criteria</i>
4.1 Decision-making	4.1.1. Extent to which resource users and stakeholders are involved in NAMMCO decision making. 4.1.2. Efficiency of NAMMCO in addressing critical issues in a timely and effective manner. 4.1.3. Extent to which NAMMCO has transparent, consistent and adequate advice-making procedures that facilitate the adoption by Parties of conservation and management measures and measures related to hunting methods in a timely and effective manner.
AREA 5 – INTERNATIONAL COOPERATION	
<i>General criteria</i>	<i>Detailed criteria</i>
5.1 Transparency	5.1.1. Extent to which NAMMCO is operating in a transparent manner. 5.1.2. Extent to which NAMMCO decisions and management advice, meeting reports, scientific advice upon which management advice is made, and other relevant materials are made publicly available in a timely fashion.
5.2 Relationship with non-NAMMCO Parties	5.2.1. Extent to which non-NAMMCO Parties have undertaken hunting activities in the NAMMCO Area. 5.2.2. Extent to which NAMMCO facilitates cooperation with non-NAMMCO Parties, including encouraging regional non-NAMMCO Parties to become Parties or to implement NAMMCO conservation and management measures voluntarily. 5.2.3. Extent to which NAMMCO provides for action in accordance with international law and Agreement against non-NAMMCO Parties undermining the use of marine mammals, as well as measures to deter such activities.
5.3 Cooperation with other international organizations	5.3.1. Extent to which NAMMCO cooperates with other marine mammal management organisations and other international organisations dealing with marine mammal conservation.

AREA 6 – FINANCIAL AND ADMINISTRATIVE ISSUES	
<i>General criteria</i>	<i>Detailed criteria</i>
6.1 Availability of resources for activities	<p>6.1.1. Extent to which financial and other resources are made available to achieve the aims of NAMMCO and to implement NAMMCO's decisions.</p> <p>6.1.2. Extent to which the schedule and organization of the meetings could be improved.</p>
6.2 Efficiency and cost effectiveness	<p>6.2.1. Extent to which NAMMCO is efficiently managing human and financial resources including those of its Secretariat.</p> <p>6.2.2. Extent to which NAMMCO and NAMMCO parties are efficiently managing the data necessary for stock assessments (abundance & removal data) and the evaluation of trends in hunters' safety and hunting efficiency, in order to provide repeatability and consistency in analyses.</p>
AREA 7 – OUTREACH	
<i>General criteria</i>	<i>Detailed criteria</i>
7.1 Visibility	<p>7.1.1. Extent to which NAMMCO has developed and disseminated a clear overall message.</p> <p>7.1.2. Extent to which NAMMCO has succeeded in establishing itself as a pre-eminent, effective and credible forum for the conservation and management of marine mammals in the Arctic and Northern Atlantic regions.</p> <p>7.1.3. Extent to which NAMMCO has succeeded in establishing itself as credible source of information for all target groups, including media, politicians, IGOs and NGOs and educational institutions on all issues related to marine mammal conservation.</p>

APPENDIX 2 - 2018 NAMMCO PERFORMANCE REVIEW SURVEY

At its 25th Annual Meeting, NAMMCO Council agreed to undertake a Performance Review of the organization and adopted a review process that can be downloaded here:

http://nammco.wpengine.com/wp-content/uploads/2017/03/22-nammco-25_performance-review-1.pdf.

NAMMCO asked the FAO, IWC and NAFO to nominate a member of the Performance Review Panel. Their nominees are Dan Goodman, Caterina Fortuna and Russell Smith, respectively.

The Performance Review Panel is seeking views on the performance of the North Atlantic Marine Mammal Commission [and its members] in implementing the 1992 Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic.

This multiple-choice questionnaire has been prepared to assist in providing information to the Panel on key areas of NAMMCO performance.

The questionnaire fully reflects all of the criteria identified by the NAMMCO Council in 2017 for this Performance Review, however, its use is optional. Any representative of interested parties (e.g. Contracting Governments, members of NAMMCO and its subsidiary bodies, Observers, etc.) can respond to the questionnaire if they so wish. Respondents can choose to respond only to questions that are most relevant to their expertise and role within NAMMCO. Respondents can also opt for a more descriptive type of response. In this case, written comments, in any format, addressing any relevant issue, including scientific issues, conservation and management measures, hunting activities, compliance and enforcement, decision-making, international cooperation, financial and administrative matters, information/communications outreach and transparency, are welcome. Respondents are kindly asked to provide their full name, nationality and role within NAMMCO.

Responses and comments received by the Panel will be treated in confidence and reviewed only by the Panel. Attributions to individual respondents will not be included in the report of the Performance Review Panel. All received information will be used only for this Performance Review.

Please submit responses to the questionnaire and any other comment by **2 March 2018** to the Chair of the Panel, Dr. Caterina Fortuna (sc.chair@iwc.int).

2018 NAMMCO PERFORMANCE REVIEW - MULTIPLE-CHOICE QUESTIONNAIRE

Name & Surname: _____ **Nationality:** _____ **Date:** _____

Role _____ **&** _____ **period** _____ **within** _____ **NAMMCO:** _____

General criteria	Detailed criteria	Question	Answer	Comments
NAMMCO main objective				
NAMMCO objective	To contribute through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic.	Q1. In your opinion, is NAMMCO meeting its objective?	Yes Partially No	
Conservation and management				
Status of marine mammal stocks	Status of marine mammal stocks under the purview of NAMMCO.	Q2. In your opinion, does NAMMCO have a good understanding of the status of marine mammal stocks under its purview?	Yes Some (for which stock?) No	
		Q3. In your opinion, has NAMMCO improved the status of marine mammal stocks under its purview?	Yes Some (for which stock?) No	
	Trends in the status of those stocks.	Q4. Are trends increasing or stable compared of those stocks since 1992?	Yes Some (for which stock?) No	
Ecosystem approach	Q5. Extent to which NAMMCO advice takes into account and incorporates an ecosystem approach to fisheries management.		None Unsatisfactory Satisfactory Good Excellent	
	Q6. Extent to which NAMMCO advice takes into account climate and environmental factors. [Note: this question has been added by the Panel]		None Unsatisfactory Satisfactory Good Excellent	
	Q7. Extent to which NAMMCO advice takes into account the potential impact of tourism, on the conservation status of stocks.		None Unsatisfactory Satisfactory Good Excellent	

General criteria	Detailed criteria	Question	Answer	Comments
Conservation and management (<i>continue</i>)				
Ecosystem approach (<i>continue</i>)	Q8. Extent to which NAMMCO advice takes into account the potential impact of shipping activities on the conservation status of stocks.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q9. Extent to which NAMMCO advice takes into account the potential impact of fishery bycatch on the conservation status of stocks.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q10. Extent to which NAMMCO advice takes into account the potential impact of the removal of fish by fishing activities on the conservation status of stocks.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Data collection and sharing	Q11. Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions (e.g. National Reports, removals (catch, bycatch, culling and any other removal) data, sightings and effort survey data).	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q12. Extent to which NAMMCO Parties, individually or through NAMMCO, collect and share, in a timely manner, complete and accurate data concerning marine mammal stocks and other relevant data in a timely manner, including analysis of trends in hunting activities and abundance estimates over time.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q13. Extent to which NAMMCO Parties collect and share, in a timely manner, complete and accurate data on hunting activities (including catch statistics, hunting effort, struck & lost).	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q14. Extent to which such data are gathered by NAMMCO, shared among Parties and used in assessment.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q15. Extent to which NAMMCO is addressing any gaps in the collection and sharing of data as required.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

General criteria	Detailed criteria	Question	Answer	Comments
Conservation and management (<i>continue</i>)				
Quality and provision of scientific advice	Q16. Extent to which NAMMCO produces or obtains the best scientific advice relevant to the marine mammal stocks under its purview, as well as to the effects of harvesting, research, conservation and associated activities on the marine ecosystem.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q17. Extent to which NAMMCO produces the best management advice relevant to the marine mammal stocks under its purview based on the best scientific advice available to ensure the long-term conservation and sustainable use of marine mammals by NAMMCO Parties.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q18. Extent to which NAMMCO has applied a Precautionary Approach [as set forth in Article 6 of the 1995 UN Fish Stocks Agreement, including the application of precautionary reference point]	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Adoption of conservation and management measures	Q19. Extent to which NAMMCO Parties have adopted and enforced management and conservation measures proposed by NAMMCO.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q20. Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice. [Note: this question has been added by the Panel]	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q21. Extent to which consistent/compatible management measures have been adopted for shared stocks by NAMMCO parties.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q22. Extent to which consistent/compatible management measures have been adopted for shared stocks by NAMMCO parties and non-NAMMCO Parties (e.g. Canada and Russia).	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

General criteria	Detailed criteria	Question	Answer	Comments
Conservation and management (continue)				
Adoption of conservation and management measures (continue)	Q23. Extent to which NAMMCO Parties have moved towards the adoption of conservation and management measures for previously unregulated takes, including new and exploratory hunting activities and bycatch.		None Unsatisfactory Satisfactory Good Excellent	
	Q24. Extent to which NAMMCO Parties have taken due account of the need to conserve marine biological diversity and minimize harmful impacts of hunting activities and research on marine mammal stocks and marine ecosystems.		None Unsatisfactory Satisfactory Good Excellent	
	Q25. Extent to which NAMMCO has proposed and Parties have adopted and are implementing effective rebuilding plans for depleted or overhunted stocks.		None Unsatisfactory Satisfactory Good Excellent	
Hunting Activities				
Status of safety and animal welfare issues	Status of safety, efficiency and animal welfare issues in all hunting activities under the purview of NAMMCO.	Q26. In your opinion, has NAMMCO improved the status of safety, efficiency and animal welfare issues in all hunting activities under the purview?	Yes Some (in which area?) No	
	Trends in the status of these issues in the review period.	Q27. In your opinion, are trends in improving hunting safety, hunting efficiency and animal welfare issues positive since 1992?	Yes Some (in which area?) No	
Data collection and sharing	Q28. Extent to which NAMMCO has agreed formats, specifications and timeframes for data submissions. (e.g. National Reports, TTD data and struck and lost data).		None Unsatisfactory Satisfactory Good Excellent	
	Q29. Extent to which NAMMCO Parties collect representative and accurate data on hunting activities (catch statistics), hunting effort, struck & lost, TTD.		None Unsatisfactory Satisfactory Good Excellent	
Quality and provision of advice on Hunting Methods	Q30. Extent to which NAMMCO produces the best advice on Hunting Methods relevant to the methods under its purview, with respect to safety, efficiency, animal welfare and struck and lost reduction.		None Unsatisfactory Satisfactory Good Excellent	
Quality and provision of advice on Hunting Methods (continue)	Q31. Extent to which NAMMCO cooperates internationally on these issues.		None Unsatisfactory Satisfactory Good Excellent	

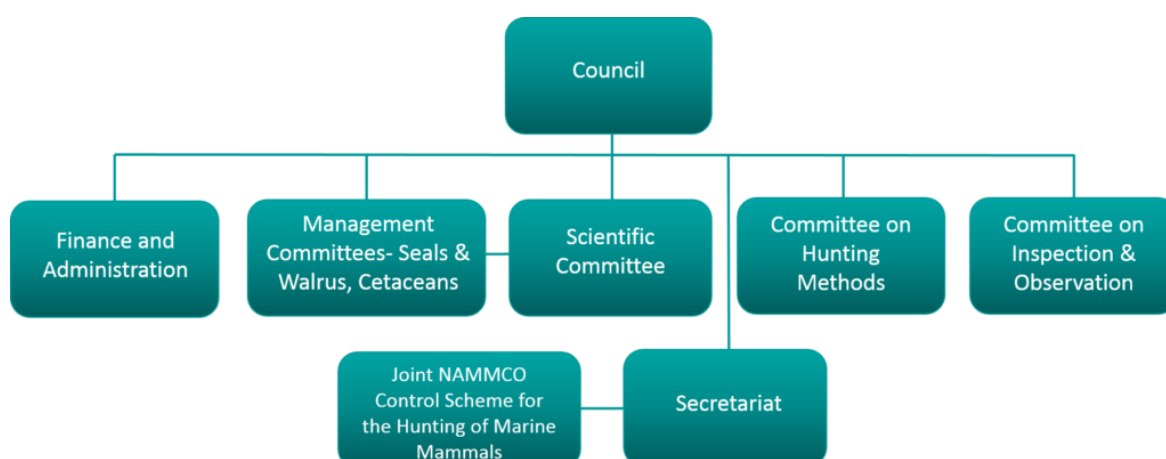
General criteria	Detailed criteria	Question	Answer	Comments
Hunting Activities (continue)				
Adoption of advice on Hunting Methods and transcription in legal instruments	Q32. Extent to which NAMMCO Parties have adopted the advice on hunting methods given by NAMMCO.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q33. Extent to which NAMMCO Parties involve resource users in deciding how to implement NAMMCO advice. [Note: this question has been added by the Panel]	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q34. Extent to which legal instruments have been developed by the Parties for enforcing the advice.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q35. Extent to which NAMMCO Parties have worked for and succeeded in reducing TTD and struck and lost.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Compliance and enforcement				
Enforcement of hunting legislation	Q36. Extent to which NAMMCO monitors hunting activities and their compliance to national legislation and NAMMCO recommendations.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Decision-making				
Decision – making	Q37. Extent to which resource users and stakeholders are involved in NAMMCO decision making. [Note: this question has been added by the Panel]	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Decision-making (continue)	Q38. Efficiency of NAMMCO in addressing critical issues in a timely and effective manner.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q39. Extent to which NAMMCO has transparent, consistent and adequate advice-making procedures that facilitate the adoption by Parties of conservation and management measures and measures related to hunting methods in a timely and effective manner.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

General criteria	Detailed criteria	Question	Answer	Comments
International cooperation				
Transparency	Q40. Extent to which NAMMCO is operating in a transparent manner.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q41. Extent to which NAMMCO decisions and management advice, meeting reports, scientific advice upon which management advice is made, and other relevant materials are made publicly available in a timely fashion.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Relationship with non-NAMMCO Parties	Q42. Extent to which non-NAMMCO Parties have undertaken hunting activities in the NAMMCO Area.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q43. Extent to which NAMMCO facilitates cooperation with non-NAMMCO Parties, including encouraging regional non-NAMMCO Parties to become Parties or to implement NAMMCO conservation and management measures voluntarily.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q44. Extent to which NAMMCO provides for action in accordance with international law and Agreement against non-NAMMCO Parties undermining the use of marine mammals, as well as measures to deter such activities.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Cooperation with other international organizations	Q45. Extent to which NAMMCO cooperates with other marine mammal management organisations and other international organisations dealing with marine mammal conservation.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Financial and administrative issues				
Availability of resources for activities	Q46. Extent to which financial and other resources are made available to achieve the aims of NAMMCO and to implement NAMMCO's decisions.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
	Q47. Extent to which the schedule and organization of the meetings could be improved.	None Unsatisfactory Satisfactory Good Excellent	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

General criteria	Detailed criteria	Question	Answer	Comments
Financial and administrative issues - <i>continue</i>				
Efficiency and cost effectiveness	Q48. Extent to which NAMMCO is efficiently managing human and financial resources including those of its Secretariat.	None	<input type="checkbox"/>	
		Unsatisfactory	<input type="checkbox"/>	
		Satisfactory	<input type="checkbox"/>	
		Good	<input type="checkbox"/>	
		Excellent	<input type="checkbox"/>	
	Q49. Extent to which NAMMCO and NAMMCO parties are efficiently managing the data necessary for stock assessments (abundance & removal data) and the evaluation of trends in hunters' safety and hunting efficiency, in order to provide repeatability and consistency in analyses.	None	<input type="checkbox"/>	
		Unsatisfactory	<input type="checkbox"/>	
		Satisfactory	<input type="checkbox"/>	
		Good	<input type="checkbox"/>	
		Excellent	<input type="checkbox"/>	
Outreach				
Visibility	Q50. Extent to which NAMMCO has developed and disseminated a clear overall message about its objectives, activities and outcomes.	None	<input type="checkbox"/>	
		Unsatisfactory	<input type="checkbox"/>	
		Satisfactory	<input type="checkbox"/>	
		Good	<input type="checkbox"/>	
		Excellent	<input type="checkbox"/>	
	Q51. Extent to which NAMMCO has succeeded in establishing itself as a pre-eminent, effective and credible forum for the conservation and management of marine mammals in the Arctic and Northern Atlantic regions.	None	<input type="checkbox"/>	
		Unsatisfactory	<input type="checkbox"/>	
		Satisfactory	<input type="checkbox"/>	
		Good	<input type="checkbox"/>	
		Excellent	<input type="checkbox"/>	
	Q52. Extent to which NAMMCO has succeeded in establishing itself as credible source of information for all target groups, including media, politicians, IGOs and NGOs and educational institutions on all issues related to marine mammal conservation.	None	<input type="checkbox"/>	
		Unsatisfactory	<input type="checkbox"/>	
Satisfactory		<input type="checkbox"/>		
Good		<input type="checkbox"/>		
Excellent		<input type="checkbox"/>		

APPENDIX 3 - NAMMCO SURVEY RESPONDENTS' GROUP

The respondent group includes NAMMCO Councillors and other member country representatives, Chair's (present and/or past) of NAMMCO Committees, NAMMCO Secretariat staff, representatives of non-member countries and some relevant IGOs. Other interested persons would be welcome to complete the survey or otherwise provide input.



Based on the following lists (sections 1-5), a provisional 'Survey target group' has been identified (section 6).

1. NAMMCO COMMISSION AND OFFICE BEARERS (as per January 2018)

1.1. *Members of the Commission*

1.1.1 COUNCILLORS

Faroe Islands: Mr Jóannes V. Hansen (Ministry of Foreign Affairs and Trade) [Now Kate S.]
 Greenland: Ms Amalie Jessen (Ministry of Fisheries, Hunting and Agriculture), Nette Levermann Acting Councillor.
 Iceland: Ms Ásta Einarsdóttir (Ministry of Industries and Innovation), with B. Benediktsdóttir then S. Ásmundsson acting Heads since March 2017
 Norway: Mr Ole-David Stenseth (Ministry of Trade, Industry and Fisheries)

1.1.2 COUNCIL CHAIRS

1992-1995 Mr Kjartan Høydal (FO)
 1995-1997 Mr Halvard P. Johansen (NO)
 1997-1999 Mr Arnór Halldórsson (IS)
 1999-2004 Ms Amalie Jessen (GL)
 2004-2008 Ms Kate Sanderson (FO)
 2008-2009 Mr Halvard P. Johansen (NO)
 2009-2012 Mr Ole-David Stenseth (NO)
 2012-2017 Ms Ásta Einarsdóttir (IS) (with Jessen acting Chair from March 2017 and at Council 25 in April 2017)
 2017-... Ms Amalie Jessen (GL)

1.1.3 COMMITTEE ON HUNTING METHODS CHAIRS

1992-1998 Ms Amalie Jessen (GL)
 1998-2005 Mr Jústines Olsen (FO)
 2005-2012 Dr Egil Ole Øen (NO)
 2012-2015 Mr Eypór Björnsson (IS)

2015-2017	Ms Nette Levermann (GL)
2017-...	Dr Guðni Magnús Eiríksson (IS)
1.1.4 COMMITTEE ON INSPECTION AND OBSERVATION CHAIRS	
1993-1995	Mr Einar Lemche (GL)
1995-2005	Dr Egil Ole Øen (NO)
2005-2011	Mr Ole Heinrich (GL)
2011-2012.	Mr Eigil ToFOte Bjørvik (GL)
2012-2015	Ms Nette Levermann (GL)
2015-...	Ms Ulla S. Wang (FO)
1.1.5 FINANCE AND ADMINISTRATION COMMITTEE CHAIRS	
1998-2000	Mr Øyvind Rasmussen (NO)
2000-2004	Mr Einar Lemche (GL)
2004-2009	Ms Ásta Einarsdóttir (IS)
2009-2012	Ms Kate Sanderson (FO)
2012-2014	Mr Einar Tallaksen (NO)
2014-2016	Mr Ole-David Stenseth (NO)
2016-...	Mr Jóannes V. Hansen (FO)
1.1.6 MANAGEMENT COMMITTEE (IN 2006 DIVIDED IN TWO MCs: CETACEANS AND SEALS & WALRUS) CHAIRS	
1993-1994	Mr Kjartan Høydal (FO) interim
1994-1998	Mr Einar Lemche (GL)
1998-2004	Mr Kaj P. Mortensen (FO)
2004-2006	Mr Halvard P. Johansen (NO)
1.1.7 MANAGEMENT COMMITTEE FOR CETACEANS CHAIRS	
2006-2008	Mr Halvard P. Johansen (NO)
2008-2012	Ms Ásta Einarsdóttir (IS)
2012-2017	Ms Ulla Wang (FO)
2017-...	Ms Netter Levermann (GL)
1.1.8 MANAGEMENT COMMITTEE FOR SEALS AND WALRUS CHAIR	
2007-2011	Ms Amalie Jessen (GL)
2011-2016.	Ms Hild Ynnesdal (NO)
2016-...	Dr Guðni Magnús Eiríksson (IS)
1.1.9 SCIENTIFIC COMMITTEE CHAIRS	
1993-1995	Dr Jóhann Sigurjónsson (IS)
1995-1997	Prof. Tore Haug (NO)
1997-2000	Prof. Mads Peter Heide-Jørgensen (GL)
2000-2004	Dr Gísli A. Víkingsson (IS)
2004-2006	Prof. Lars Walløe (NO)
2006-2009	Dr Geneviève Desportes (FO)
2009-2012	Dr Lars Witting (GL)
2012-2016	Mr Þórvaldur Gunnlaugsson (IS)
2016-...	Prof. Tore Haug (NO)
	<i>B. Mikkelsen (FO) has been Vice-Chair since 2016 and will likely become chair in 2018</i>
1.1.10 SECRETARIAT	
<i>General Secretary</i>	
1993-1998	Kate Sanderson
1999-2004	Grethe Hovelsrud-Broda
2005-2015	Dr Christina Lockyer
2015-...	Dr Geneviève Desportes
<i>Deputy Secretary</i>	
	Ms Charlotte Winsnes
<i>Scientific Secretary</i>	
1999-2007	Daniel Pike, Canada

2007-2013 Mario Acquarone, Italy
2013-2018 Ms Jill Prewitt

2. POTENTIAL RESPONDENT GROUP

List of 132 potential respondent to which questionnaires and/or specific questions were sent.

2.1. Active NAMMCO Communities

2.1.1 OFFICE BEARERS

1. Ms Amalie Jessen (GL Councillor & FAC member, Council Chair, former Committee on Hunting Methods Chair, former Management Committee for Seals and Walrus Chair; Ministry of Fisheries, Hunting and Agriculture)
2. Ms Nette Levermann (Acting GL Councillor, Management Committee for Cetaceans Chair, former Committee on Hunting Methods Chair, former Committee on Inspection and Observation Chair; Ministry of Fisheries, Hunting and Agriculture)
3. Mr Jóannes V. Hansen (FO Councillor & FAC member, Ministry of Foreign Affairs and Trade, Finance and Administration Committee Chair)
4. Ms Ulla S. Wang (FO, Committee on Inspection and Observation Chair and former Management Committee for Cetaceans Chair)
5. Ms Ásta Einarsdóttir (IS Councillor & FAC member, former Council chair, former Finance and Administration Committee Chair, former Management Committee for Cetaceans Chair; Ministry of Industries and Innovation)
6. Brynhildur Benediksdóttir (Acting Icelandic Councillor & FAC member & FAC at Council 25 & 26)
7. Stefán Ásmundsson (present FAC member)
8. Dr Guðni Magnús Eiríksson (IS, Committee on Hunting Methods Chair and Management Committee for Seals and Walrus Chair)
9. Mr Ole-David Stenseth (NO Councillor & FAC member, former Council chair, former Finance and Administration Committee Chair; Ministry of Trade, Industry and Fisheries)
10. Ms Hild Ynnesdal (NO, Management Committee for Seals and Walrus Chair, Member of the Committee for Hunting Methods and Committee on Inspection and Observation.; Directorate of Fisheries)
11. Dr Katrine Ryeng (NO, IMR, Chair of the BYCELS WG)

2.1.2 SCIENTIFIC COMMITTEE CHAIRS (SC)

- Dr Gísli A. Víkingsson (IS, former SC Chair, MFRI, present SC member)
- Dr Lars Witting (GL, former SC Chair, GINR, present SC member)
- Prof. Tore Haug (NO, IMR, Chair of the SC)
- Mr Þórvaldur Gunnlaugsson (IS, former SC Chair, MFRI, present SC member)
- Prof. Mads Peter Heide-Jørgensen (GL, former SC Chair, GINR, present SC member)
- B. Mikkelsen (FO, Natural History Museum, SC Vice-Chair since 2016, coming chair in 2018)

2.1.3 SCIENTIFIC COMMITTEE MEMBERS

- Lydersen, Norwegian delegate
- Mauritzen, Norwegian delegate
- Nilssen, Norwegian delegate
- Øien, Norwegian delegate
- Elvarsson, Islandic delegate
- Granquist, Islandic delegate
- Ugarte, Greenlandic delegate
- Guldborg-Hansen, Greenlandic delegate
- Rosing-Asvid, Greenlandic delegate

2.1.4 SECRETARIAT STAFF

- Dr Geneviève Desportes (FO, General Secretary and former SC Chair)
- Charlotte Winsnes (former administrative coordinator, present Deputy Secretary)
- Jill Prewitt (present Scientific Secretary)

2.2 Former office bearers & Secretariat staff

2.2.1 FORMER COUNCIL MEMBERS

- Mr Einar Lemche (GL, first Committee on Inspection and Observation Chair, former Finance and Administration Committee Chair, former Management Committee Chair)
- Ms Kate Sanderson (FO, first General Secretary, former Council Chair, former Finance and Administration Committee Chair)
- Mr Halvard P. Johansen (NO, former Council Chair, former Management Committee and Management Committee for Cetaceans Chair)
- Dr Egil Ole Øen (NO, former Committee on Hunting Methods Chair, former Committee on Inspection and Observation Chair)
- Mr Jústines Olsen (FO, former Committee on Hunting Methods Chair)
- Mr Eypór Björnsson (IS, former Committee on Hunting Methods Chair)

2.2.2 FORMER SC CHAIRS

- Dr Jóhann Sigurjónsson (IS, first Scientific Committee Chair)
- Prof. Lars Walløe (NO, former Scientific Committee Chair)

2.2.3 FORMER SECRETARIAT STAFF

- Dr Grethe Hovelsrud-Broda (former General Secretary)
- Dr Christina Lockyer (UK, former General Secretary)
- Daniel Pike (Canada, first Scientific Secretary, Chair of WG on Abundance Estimates)
- Dr Mario Acquarone (Italy, former Scientific Secretary)

2.3 Representatives or members of Observers (Non-Contracting Governments, relevant IGOs, relevant NGOs) and other relevant IGOs

2.3.1 GOVERNMENTS

31. Canada: Seth Reinhart (Senior Policy Advisor, International Fisheries Management and Bilateral Relations, Fisheries and Oceans)
32. Denmark: Peter Wilhelm Linde (Chief Advisor/Department for the Arctic and North America Ministry of Foreign Affairs)
33. Japan: Hiroyuki Morita (International Affairs Division, Fisheries Agency of Japan);
34. Japan: Hideki Moronuki (International Affairs Division, Fisheries Agency of Japan)
35. Russian Federation: Vladimir Zabavnikov (observe also at SC meetings. PINRO)
36. Russian Federation: Kirill Zharikov;
37. Russian Federation: Olga Zyatneva;
38. St. Lucia: Ministry of Agriculture.

2.3.2 MEMBERS OF REPRESENTATIVES OF RELEVANT INTER-GOVERNMENTAL ORGANIZATIONS (IGO)

- Agreement on the Conservation of Small Cetaceans of the Baltic & North Seas (ASCOBANS)/ Convention on Migratory Species (CMS): Sami Hassani, Chair of the Advisory Committee,
 - ASCOBANS Secretariat, Melanie Virtue
 - ASCOBANS Secretariat, Aline Kuehl-Stenzel
 - ASCOBANS Secretariat, Penina Blankett;
37. Arctic Council, Secretariat
 38. Arctic Council, Director Nina Vang
 39. Arctic Monitoring and Assessment Program (AMAP)
 40. Canada Greenland Joint Commission for Narwhal and Beluga – no secretariat – sent to the 2 co-commissioners: Amalie Jessen (GL) and Larry Dow from (DFO, CA)
 41. CMS, Heidrun Frish
 42. Conservation of Arctic Flora and Fauna (CAFF) – Tom Barry, Executive Secretary
 43. Convention on Biological Diversity (CBD), Alexander Shestakov
 44. Convention on International Trade of Endangered Specimens of Wildlife Fauna and Flora (CITES) - CITES Sec
 45. European Commission: Marc Richir (Senior Expert Ocean governance, Marine Biodiversity, Whaling, Trade in Seal Products, DG ENV, European Commission)
 46. FAO, Amparo Perez Roda;

47. FAO - Árni M. Mathiesen, Fisheries and Aquaculture Department
48. FAO - Danielle Rizcallah
49. FAO – Eliana Haberkon;
50. FAO – Joanna Toole;
51. FAO - Piero Mannini;
52. FAO – Pingguo He
53. International Council for the Exploration of the Sea (ICES) - ICES General Secretary, Anne Christine
54. International Whaling Commission (IWC) - Rebecca Lent present Secretary
55. International Whaling Commission (IWC), Simon Brockington, former Secretary)
56. Nordic Atlantic Cooperation (NORA) - Ásmundur Gudjónsson, Director
57. Nordic Council of Ministers – Helge Paulsen, senior adviser to NCM
58. Nordic Council of Ministers – Geir Oddsson;
59. North-East Atlantic Fisheries Commission (NEAFC) - Darius Campbell, Secretary,
60. Northwest Atlantic Fisheries Organization (NAFO) - Fred Kingston, Executive Secretary,
61. OSPAR - Lena Avellan, Deputy Secretary (Biodiversity)
62. OSPAR - Susana Salvador, Executive Secretary,
63. Protection of the Arctic Marine Environment (PAME): Soffia Gudmundsdottir, Executive Secretary
64. South East Atlantic Fisheries Organisation (SEAFO) – Lisette Voges, Executive Secretary,

2.3.3 INTERNATIONAL PARTNERSHIP

65. International Union for Conservation of Nature, Randall R. Reeves, Chair of the IUCN Cetacean Specialist Group
66. International Union for Conservation of Nature, Jon Paul Rodriguez, Chair of the IUCN Species Survival Commission

2.3.4 GOVERNMENTAL ORGANIZATIONS

67. Government of Nunavut, Department of Environment, Iqaluit, Nunavut, Canada,
68. Nunavut Wildlife Management Board, Iqaluit, Nunavut, Canada (Jason Akearok)

2.3.5 PARLIAMENTARY REPRESENTATIVES

69. Aaja Larsen;
70. Aleqa Hammond;
71. Magni Arge;
72. Sjurður Skaale;
73. Jorn Dorhrmann;

2.3.6 NON-GOVERNMENTAL ORGANIZATIONS

74. Association of Traditional Marine Mammal Hunters of Chukotka (ATMMHC) - Secretariat
75. Canadian Sealers' Association
76. European Bureau for Conservation and Development (EBCD) - Despina Symons Pirovolidou, Director
77. European Bureau for Conservation and Development (EBCD) – Lynn Sundelius
78. Greenpeace International, John Frizell
79. International Fund for Animal Welfare, Eleonora Panella
80. International Fund for Animal Welfare, K Farinella
81. International Fund for Animal Welfare, Matthew Collins
82. International Wildlife Management Consortium (IWMC): Eugène Lapointe
83. International Work Group for Indigenous Affairs (IWGIA), Julie Koch, Executive Director
84. Inuit Circumpolar Conference, ICC GL, Hjalmar Dahl - ICC Greenland President and ICC Vice-Chair
85. Inuvialuit Game Council
86. Kristjan Loftsson (IS, whaler, long-term member of the Committee on Hunting Methods)
87. Livelihood International, Gil Theriault;
88. Makivik Corporation, Adamie Delisle-Alaku
89. Makivik Corporation, Stas Olpinski, Director;
90. Nunavut Tunngavik Inc., NTI Iqaluit, Nunavut, Canada (Bert Dean)

91. Nunavut Tunngavik Inc., NTI Iqaluit, Nunavut, Canada (James Eetoolook)
92. Nunavut Tunngavik Inc., NTI Iqaluit, Nunavut, Canada (Paul Irngaut)
93. WWF Canada, Melanie Lancaster
94. WWF Denmark, Mette Frost
95. WWF Sweden, Tom Arnbom

2.3.7 UNIVERSITIES

96. Law, Economics and Governance, Utrecht University School of Law, International and European Law, Professor Erik J. Molenaar

2.4 Other experts involved in NAMMCO work

2.4.1 EXTERNAL CHAIR OF NAMMCO WG

97. Erik Born, past chair of WG on walrus, retired GINR
98. Doug Butterworth (University of Cape town, Chair of WG on fin and minke whale)
99. Mike Hammill (CA, Chair of NAFO-NAMMCO-ICES WG on harp and hooded seals, also observe at SC meetings)
100. Rod Hobbs (USA) NAMMCO Chair of the Joint NAMMCO-JCNB WG (USA) and Chair of GROM (Global review of Monodontids)
101. Kit Kovacs (NO) & Rod Hobbs (USA) (co-chair) of Symposium on Disturbances
102. Kimberly Murray (NFSC, NOAA Federal, Chair of WG on By-Catch)
 - Daniel pike (CA, Chair of WG on Abundance Estimates)
103. Rob Stewart (present chair of WG on walrus, retired from DFO)
 - Lars Walløe (NO), Large Whale Assessment

2.4.2 NON-NAMMCO SCIENTISTS

104. Arne Bjørge (IMR: WG on Coastal Seals, WG on By-Catch)
105. David Borchers (CREEM, WGs on Abundance Estimates and Survey Planning)
 - Doug Butterworth, University of Cape town: WG on Large Whale Assessment, WG on fin and minke whale, WG on Abundance Estimates
106. Greg Donovan (IWC: WGs on Abundance Estimates and Survey Planning)
107. Steve Ferguson (DFO, Joint NAMMCO JCNB WG on beluga and narwhal, GROM)
108. Phil Hammond (SMRU: WGs on Abundance Estimates and Survey Planning)
109. Tero Härkönen (WG on Coastal Seals)
 - Kit Kovacs, Norwegian Polar Institute: WG on walrus
110. Jack Lawson (DFO: SC meetings, WG on Abundance Estimates, WG on Survey Planning; Joint NAMMCO JCNB WG on beluga and narwhal)
111. David Lee (NTI: Joint NAMMCO JCNB WG on beluga and narwhal, GROM)
112. Marjorie Lysykatos (NFSC, NOAA Federal: WG on)
 - Kimberly Murray (NFSC, NOAA Federal: WG on Coastal Seals, NAFO-NAMMCO-ICES WG on harp and hooded seals)
113. Debra Palka (NMFS: WGs on Abundance Estimates and Survey Planning)
114. Sophie Smout (School of Mathematics and Statistics, Univ of St Andrews: WG on Coastal Seals & NAFO-NAMMCO-ICES WG on harp and hooded seals)
115. Gary Stenson (NAFO-NAMMCO-ICES WG on harp and hooded seals, WG on Coastal Seals)
 - Rob Stewart (DFO, Joint NAMMCO JCNB WG on beluga and narwhal, GROM, WG on walrus)
116. Østein Wiig, Oslo Natural History Museum, Joint NAMMCO JCNB WG on beluga and narwhal, WG on walrus
117. Vladimir Zabavnikov, PINRO: SC meetings & WGs on Abundance Estimates and Survey Planning
118. Kirill Zharikov, Federal Research institute of Fisheries and Oceanography
119. Steve Ferguson (DFO Canada)
120. Tero Härkönen (Swedish Museum of Natural History)
121. Jack Lawson (DFO Canada)
122. Marjorie Lyssitakos (NOAA)
123. Debra Palka (NOAA)

124. Sophie Smout (University St Andrews, UK)
125. Garry Stenson (DFO Canada)
126. Øystein Wiig (Natural History Museum, Norway)
 - Vladimir Zabavnikov
 - Kiriil Zharikov
127. Jan Danielsson- Swedish veterinary, expert EG sealing, + NAMCMO observer several years
128. Pierre-Yves Daust – Canadian veterinary, expert on EG sealing, small cetaceans and 2nd TTD large whales
129. Hajime Ishikawa: expert group meeting 1st TTD large whales, WS struck and lost + WS hunting methods (1999)
130. Glenn Williams – former NTI, co-chaired WS struck and lost and seals and walrus, EG on small cetaceans participant
131. Edward Zdor - Former ATMMHC secretary – participant to Struck & Lost WSs and WS on Seal and walrus.

2.5 Journalists

132. Stine Leth-Nissen
133. Martine Breum

APPENDIX 4 – SPECIFIC QUESTIONS FOR IN-PERSON INTERVIEWS

FOLLOW-UP QUESTIONS FOR MANAGERS/NAMMCO COUNCIL

1. **Does NAMMCO have a clear strategic direction geared to key functions, intended results and integration of relevant cross-cutting priorities?**
 - a. Does NAMMCO have sufficient understanding of the needs and demands it faces in the present and may face in the future, in terms of contributing 'through regional consultation and cooperation to the conservation, rational management and study of marine mammals in the North Atlantic', also keeping in mind that the Arctic region is currently subject to major environmental/climate changes?
 - b. What is NAMMCO's process for:
 - i. Identifying the marine mammal stocks of the North Atlantic that are within NAMMCO's remit;
 - ii. Determining which of those stocks require action by NAMMCO or its members related to management and conservation;
 - iii. Determining what action is required for the management and conservation of identified stocks; and
 - iv. Determining whether the action taken has addressed the management and conservation need(s) or whether additional action is needed?
 - c. What have been the major achievements or contributions of the NAMMCO Council in the management and conservation of marine mammals in the North Atlantic?
 - d. How has [Greenland/Faroe Islands/Iceland/Norway] implemented NAMMCO management advice in its laws and regulations? Please give examples.
 - i. How has the Precautionary Approach been applied in implementing NAMMCO management advice;
 - ii. How has NAMMCO advice concerning hunting methods been implemented?
 - e. How does NAMMCO monitor hunting activities for marine mammals in the North Atlantic?
 - i. What conclusions have been reached about whether the monitored activity complies with NAMMCO management advice?
 - ii. National laws and regulations?
 - f. Does NAMMCO meet your expectations or needs?
2. **Are NAMMCO assets and capacities organised behind strategic direction and intended results, to ensure relevance, agility and accountability?**
 - a. Does NAMMCO have the authorities and resources that it needs to achieve its mandate?
 - b. Is the organisation using its assets to maximum effect in the present and is it prepared for the future?
 - c. Is NAMMCO taking into consideration the distribution of funding resources over themes?
 - d. Is NAMMCO taking into consideration the distribution of human resources over themes?
 - e. What changes to the administrative arrangements concerning the functioning of the Council and its subordinate bodies (including, but not limited to, funding, expertise/participation and support from the Secretariat) could increase efficiency and the quality of the work of those bodies?
 - f. Has NAMMCO efficiently achieved relevant, inclusive and sustainable results on conservation and management of marine mammals?
 - g. Are you satisfied with the outcomes from the NAMMCO subsidiary bodies (e.g. Scientific Committee, Management Committee, etc.)?
 - i. If yes, please, specify in which area and why.

3. **Is NAMMCO engaging in inclusive cooperation and outreach (i.e., with CGs, other national and international stakeholders, including relevant IGOs) to support relevance, to leverage effective solutions and to maximise results?**
 - a. To what extent are resource users involved in NAMMCO decision-making? Other stakeholders?
 - b. Has the Council and/or its subsidiary bodies coordinated management and conservation actions with other regional fisheries bodies in the north Atlantic? Please describe those efforts. How have those efforts improved the management and conservation of marine mammals in the north Atlantic?
 - c. Are there bilateral arrangements between NAMMCO members and non-members concerning the management of marine mammals?
 - i. What are those arrangements?
 - ii. How do they impact the work of NAMMCO?
4. **Is NAMMCO's governance system geared to managing and accounting for results in regional cooperation, marine mammal conservation and management and using performance information (e.g. tracking effectiveness of/enactment on recommendations), including evaluation and lesson-learning?**
 - a. Are its systems, planning and operations fit for purpose? Is it geared in terms of operations to deliver on its mandate?
 - b. Is NAMMCO delivering and demonstrating relevant and sustainable results in a cost-efficient way?

QUESTIONS FOR THE CHAIR OF THE COMMITTEE ON INSPECTION AND OBSERVATION AND FORMER MANAGEMENT COMMITTEE FOR CETACEANS CHAIR

1. How does NAMMCO monitor hunting activities for marine mammals in the North Atlantic?
2. What conclusions have been reached about whether the monitored activities comply with NAMMCO management advice?
3. Are you satisfied with the Committee on Inspection and observation's work and outputs? How could this be improved?
4. To which extent NAMMCO is, in your opinion, applying the Precautionary Approach?
 - a. Do you agree with its application?
5. What have been the major outputs from the Management Committee on Cetaceans and how has advice from this Committee been implemented by the Governments concerned?
6. Can you describe how the work of the Scientific Committee and the work of the Management Committee on Cetaceans is integrated or coordinated?

QUESTIONS FOR THE CHAIR OF MANAGEMENT COMMITTEE FOR CETACEANS

1. How does NAMMCO manage cetaceans for marine mammals in the North Atlantic?
2. Are you satisfied with the Committee's work and outputs? How could this be improved?
3. To which extent NAMMCO is, in your opinion, applying the Precautionary Approach?
 - a. Do you agree with its application?
4. What have been the major outputs from the Management Committee on Cetaceans and how has advice from this Committee been implemented by the Governments concerned?
 - a. Could you please provide examples and reasons when its advice was not implemented?
5. Can you describe how the work of the Scientific Committee and the work of the Management Committee on Cetaceans is integrated or coordinated?

QUESTIONS FOR THE CHAIR OF FINANCE AND ADMINISTRATION COMMITTEE

1. Are financial NAMMCO resources apt to improve conservation of marine mammals in the North Atlantic?

2. Are you satisfied with the Committee's work and outputs? How could this be improved?
3. To which extent NAMMCO is, in your opinion, applying the Precautionary Approach?
 - a. Do you agree with its application?
4. What have been the major outputs from the Management Committee on Cetaceans and how has advice from this Committee been implemented by the Governments concerned?
 - a. Could you please provide examples and reasons when its advice was not implemented?
5. Can you describe how the work of the Scientific Committee and the work of the Management Committee on Cetaceans is integrated or coordinated?

QUESTIONS FOR THE NAMMCO SCIENTIFIC COMMITTEE CHAIRS, MEMBERS, WORKING GROUP CHAIRS AND INVITED EXPERTS

1. What have been the major achievements or contributions of the Scientific Committee to research related to the management and conservation of marine mammals?
2. Please describe the progress that has been made by the Scientific Committee on improving understanding of the impact of climate change on marine mammals.
3. Please describe the progress that has been made by the Scientific Committee related to improving understanding of the interactions between marine mammals and commercial fisheries.
4. Please describe the efforts made by the Scientific Committee on multispecies approaches to management.
5. What changes to the administrative arrangements related to the functioning of the Scientific Committee (including, but not limited to, funding, expertise/participation and support from the Secretariat) could increase efficiency and the quality of outputs?
6. What lessons do you think that the NAMMCO Scientific Committee could learn from the operations of the scientific committees of other international bodies? Are there lessons that any of those bodies could learn from the NAMMCO Scientific Committee?

QUESTIONS FOR NAMMCO INVITED EXPERTS

Considering the work that you have been carrying out within NAMMCO, in relation to your scientific and technical expertise, we kindly ask you to try answering the following questions at the best of your knowledge.

1. Based on your direct experience, what have been the major achievements or contributions of the Scientific Committee, the Management Committees, the Committee on Hunting Methods and the Committee on Inspection and Observation and their related working groups, to research related to the management and conservation of marine mammals? *[Note: respond only for the Committees/working groups that you attended]*
2. Based on your direct involvement in the scientific and technical work of NAMMCO, please describe the progress that has been made by the above groups in which you did participate on improving understanding of the impact of human activities on marine mammals. *[Note: please, specify which activities were under discussion when you participated in NAMMCO meetings. Areas of interest could be: climate change, interactions between marine mammals and commercial fisheries; approaches to multispecies management; hunting quotas; hunting methods, observer schemes, etc.]*
3. What changes to the administrative arrangements related to the functioning of the NAMMCO Committees and their working groups (including, but not limited to, funding, expertise/participation and support from the Secretariat) could increase efficiency and the quality of outputs?
4. What lessons do you think that the NAMMCO Committees could learn from the operations of the similar committees of other international bodies? Are there lessons that any of those bodies could learn from the NAMMCO Committees?

FOLLOW-UP QUESTIONS FOR NON-MEMBER COUNTRIES

CANADA:

1. Canada has been an observer to NAMMCO since it came into effect. Canada also has shared (with Greenland) stocks of harvested marine mammals (bowhead whales, harp and hooded seals) that are not covered by the Canada/Greenland agreement on narwhal and beluga so
 - a. Why hasn't Canada joined NAMMCO?
 - b. When was the last time this issue was reviewed?
2. Does Canada cooperate with NAMMCO's Scientific Committee or any other subordinate body/bodies of the Council?
 - a. If yes, please, specify with whom and how.
3. Does Canada think that NAMMCO is contributing to improving research, conservation and management of marine mammals in the North Atlantic?
 - a. If yes, please, specify in which area and how.

JAPAN:

1. Japan has been an observer to NAMMCO since it came into effect.
 - a. Please, explain your interest in NAMMCO.
 - b. Does Japan have any interest in, or plans to, harvest any of the marine mammal stocks in the North Atlantic?
2. Can you describe Japan's cooperation with NAMMCO with practical examples?
3. Does Japan think that NAMMCO is contributing to improving research, conservation and management of marine mammals in the North Atlantic?
 - a. If yes, please, specify in which area and how.

RUSSIAN FEDERATION:

1. The Russian Federation has been an observer to NAMMCO since it came into effect.
 - a. Could you, please, explain your interest in NAMMCO?
 - b. Does Russia have any interests in, or plans to, harvest any of the marine mammal stocks in the North Atlantic?
2. Can you describe Russia's cooperation with NAMMCO with practical examples?
3. Does Russia think that NAMMCO is contributing to improving research, conservation and management of marine mammals in the North Atlantic?
 - a. If yes, please, specify in which area and how.

DENMARK:

1. Denmark has been an observer to NAMMCO since it came into effect.
 - a. Why hasn't Denmark joined NAMMCO?
2. Can you describe Denmark's cooperation with NAMMCO with practical examples, if any?
3. Does Denmark think that NAMMCO is contributing to improving research, conservation and management of marine mammals in the North Atlantic?
 - a. If yes, please, specify in which area and how.

FOLLOW-UP QUESTIONS FOR WHALERS AND HUNTER

1. Please tell us what species of marine mammals you hunt and your general views of NAMMCO, including its mission and its performance.
2. How do the Icelandic/Greenlandic whalers/hunters relate to NAMMCO?
3. Are you satisfied with the way that NAMMCO has addressed the issue of integrating user (i.e., from whalers and hunter) knowledge through its Committees and the Council (e.g. in science and management)?
4. To which extent NAMMCO is, in your opinion, applying the Precautionary Approach?
 - a. Do you agree with its application?

5. What improvements to NAMMCO's outputs would you like to see?
6. Are you satisfied with the way that your Government has implemented recommendations from NAMMCO? Please give examples.

APPENDIX 5 - DOCUMENTS PROVIDED BY THE SECRETARIAT TO THE REVIEW PANEL

Code	Description of the document	Date of request	Agreed DoD	Date of delivery (DoD)
<i>NAMMCO general information</i>				
PRP2018_01	List of Annual reports and information on the Council meetings, Committee meetings and National Progress reports they cover/refer to, with information on Chairs.	100118	310118	270118
PRP2018_02	Time line of events/activities/main decisions	100118	310118	270518
PRP2018_03	List of key people in NAMMCO	100118	310118	170118
PRP2018_04	SC: Historic: SC Members & Participants to Annual meeting (all)	100118	310118	270118
PRP2018_05	Overview of international legal instruments pertaining to the NAMMCO area of competence	100118	310118	090818
PRP2018_06	Background information on the "Nuuk Declaration": details for each of the 5 bullet points (paragraph 2) with specific examples	290118	280218	140818
PRP2018_07	Overview of ToRs for WG, EG, WS, Symposia and conferences organised by NAMMCO			280518, updated 020818
PRP2018_08	Potential Respondents group (email contacts)	100118	310118	290118 updated 220218
<i>Decision making and scientific/technical advice</i>				
PRP2018_09	List of all advices provided to the Council/Management Committees (MCs) by the Scientific Committee (SC) until CN24, decision by Council/MCs, and answers by Parties	100118	310118	220218, updated 200718
PRP2018_10	List of all advices provided to the Council/Management Committees (MCs) by the Scientific Committee (SC) since CN25, decision by Council/MCs, and answers by Parties	100118	310118	220218, updated 200718
PRP2018_11	List of requests of advice from Council to the Scientific Committee and Scientific Committee responses.	100118	310118	270118 updated 130718
PRP2018_12	List of all advices provided to the Council/Management Committees (MCs) by the Committee of Hunting Methods (CHM), decision by Council/MCs, and answers by Parties	100118	310118	200718, updated 240818
PRP2018_13	List of all advices provided to the Council/Management Committees (MCs) by the Committee on Inspection and Observation (CIO), decision by Council/MCs, and answers by Parties	100118	310118	200718
PRP2018_14	List of proposals for conservation and management up to CN24	July	ASAP	updated 150718
PRP2018_15	Overview of Proposals for Conservation and Management: 2016–2017	March	ASAP	updated 150318
PRP2018_16	CHM: Overview of Marine Mammal Hunting Methods, inc. national regulations & monitoring/observations in NAMMCO countries	100118	310118	290118
PRP2018_17	Overview of hunt types in NAMMCO countries and hunts observed in 1998-2017			290118
PRP2018_18	CHM: Information on the Norwegian blue box (a. doc to IWC 2005, b. doc to NAMMCO EG - evaluation 2010)	190218	ASAP	210218
PRP2018_19	CIO: Overview of observation activities (incl. target hunts and efforts)	100118	310118	290118
PRP2018_20	CIO: Overview & Evaluation of the implementation of the NAMMCO Control Scheme by Secretariat (after CIO meeting in February 2018)	290118	280218	160718
PRP2018_21	CIO: A summary of the activities undertaken under the NAMMCO control scheme.	290118	280218	290118
PRP2018_22	Overview of Observation scope 1998-2018			160718
<i>Scientific and technical knowledge on marine mammals</i>				
PRP2018_23	MCs: Overview of the protection status of marine mammal stocks in NAMMCO countries and relevant national regulations	100118	310118	290118
PRP2018_24	Overview of the conservation status of marine mammal stocks in NAMMCO countries	290118	310118	290118
PRP2018_25	Marine mammals in the purview of NAMMCO	100118	310118	260118
PRP2018_26	Reviews and assessments of cetacean stocks by NAMMCO	290118	280218	140818, updated 230818
PRP2018_27	Comments from reviews and assessments of cetacean stocks by NAMMCO	290118	280218	230818
PRP2018_28	Reviews and assessments of pinniped stocks by NAMMCO	290118	280218	140818, update: 230818
PRP2018_29	Comments from reviews and assessments of pinniped stocks by NAMMCO	290118	280218	230818

Code	Description of the document	Date of request	Agreed DoD	Date of delivery (DoD)
Scientific and technical knowledge on marine mammals - continue				
PRP2018_30	Trends of Cetacean Abundance	290118	280218	210218
PRP2018_31	Trends of Seal Abundance	290118	280218	210218
Scientific and technical knowledge on marine mammals - continue				
PRP2018_32	NAMMCO data spreadsheet	290618	ASAP	290618 updated 081118
PRP2018_33	NAMMCO & the By-catch of Marine Mammals			100818
International cooperation				
PRP2018_34	List of organizations with whom there has been cooperation with NAMMCO on scientific issues	160718	ASAP	310718
PRP2018_35	NAMMCO Secretariat participation/cooperation with other organizations including Regional Fishery Body Secretariats Network, FAO, OSPAR, NEAFC and others	160718	ASAP	310718
PRP2018_36	ICES-NAMMCO relationship, developments from MOU to LOA and joint WG			130818
PRP2018_37	List of organizations to which NAMMCO members are appointed as observers on behalf of NAMMCO	160718	ASAP	310718
PRP2018_38	Discussion with ASCOBANS on a cooperation on a status review of harbour porpoises in the North Atlantic	190218	ASAP	220218
Outreach and transparency				
PRP2018_39	A chronology of activities undertaken by NAMMCO related to public information/communications.	290118	280218	240718
PRP2018_40	Review and list of NAMMCO contacts with media, politicians, IGOs and NGOs and educational institutions, including list of sought contacts and object and the list of citations of NAMMCO work 2013-18 (citation of reports) in in different forum (academic, IUCN red list assessments, IWC, CAFF, DFO-COSEWIC, ICES, SCOS reports, NGOs)	100818, rev230818	ASAP	200918
Administration and Human Resources				
PRP2018_41	A list or summary of the major actions undertaken by the NAMMCO council related to finance and administration. [events-timeline.xlsx]	290118	280218	27/01/18 & 27/05/18
PRP2018_42	A description of the Secretariat staff and the responsibilities of the various positions	290118	280218	210218
PRP2018_43	Overview on NAMMCO budget and changes in the allocations of funds	290118	280218	120718
PRP2018_44	Specification on budget cuts in budget 2018-20			060818
PRP2018_45	Overview of work load through the years for the Scientific Committee versus the Committee for Hunting Methods, Committee for Inspection and Observation and the Working Group on By-catch, Entanglements and Live Strandings (BYCELS)			080818
PRP2018_46	Overview of pension costs 2012-2018			111018
Additional documents				
PRP2018_47	Overview of participation of observers to NAMMCO Council meetings			250118
PRP2018_48	Overview of human resources Parties devote to the work of NAMMCO	031118	ASAP	031218

APPENDIX 6 - KEY PERFORMANCE INDICATORS (KPI) AND SUB-KPI (INSPIRED BY MOPAN 3.0)

KPIs are used as questions. All sub KPIs are used to clarify areas covered by each question and give examples/help to elaborate on the original question.

We will explain to each interviewee that:

- The intention of the interview is to collect data on **perceptions** from different stakeholders on NAMMCO's activities and performance.
- Every interviewee contributes with her/his unique point of view (filtered by their experience, background and role).
- Therefore, there are not right or wrong answers.
- Responses and comments received by the Panel will be treated in confidence and reviewed only by the Panel.
- Attributions to individual respondents will not be included in the report of the Performance Review Panel.
- All received information will be used only for this Performance Review.

The following sections summarize all general questions and indicators used to assess each area.

5.2.1 Strategic management

Does NAMMCO have a clear strategic direction geared to key functions (i.e., regional cooperation, conservation/management and research), intended results and integration of relevant cross-cutting priorities?

KPI 1: Organisational architecture and financial framework enable mandate implementation and achievement of expected results.

- 1.1 Strategic plan and intended results based on a clear long-term vision.
- 1.2 Organisational architecture congruent with a clear long-term vision and associated operating model.
- 1.3 Strategic plan supports the implementation of wider normative frameworks and associated results.
- 1.4 Financial framework (e.g. division between core and non-core resources) supports mandate implementation.

KPI 2: Structures and mechanisms in place and applied support the implementation of global frameworks for cross-cutting issues at all levels.

- 2.1 NAMMCO and CGs strategies respond to and/or reflect the intended results of normative frameworks for cross-cutting issues.
 - 2.1a Gender equality and the empowerment of women.
 - 2.1b Indigenous people representativeness.
 - 2.1c Environmental sustainability and climate change.
 - 2.1d Good governance (peaceful, inclusive and effective negotiation for regional cooperation, conservation and management of marine mammals).

5.2.2 Operational management

Are NAMMCO assets and capacities organised behind strategic direction and intended results, to ensure relevance, agility and accountability?

KPI 3: Operating model and human/financial resources support relevance and agility.

- 3.1 Organisational structures and staffing ensure that human and financial resources are continuously aligned and adjusted to key functions (i.e., NAMMCO main objective and Council recommendations).
- 3.2 Resource mobilization efforts are consistent with the core mandate and strategic priorities.
- 3.3 Funding reallocation and programming decisions responsive to need can be made at a decentralised level.
- 3.4 HR systems and policies are performance based and geared to the achievement of results.

KPI 4: Organisational systems are cost and value conscious and enable financial transparency/accountability.

- 4.1 Decision-making for resource allocation, consistent with strategic priorities.
- 4.2 Allocated resources are disbursed as planned.
- 4.3 Principles of results-based budgeting are applied.
- 4.4 External audit or other external reviews certifies the meeting of international standards at all levels, including with respect to internal audit.
- 4.5 Issues or concerns raised by internal control mechanisms (operational and financial risk management, internal audit, safeguards, etc.) are adequately addressed.
- 4.6 Policies and procedures effectively prevent, detect, investigate and punish cases of fraud, corruption and other financial irregularities.

5.2.3 Relationship management

Is NAMMCO engaging in inclusive regional cooperation and partnerships to support relevance, to leverage effective solutions/actions and to maximise results?

KPI 5: Operational planning and intervention design tools support relevance and agility (within partnerships: CGs, NAMMCO Secretariat, other relevant stakeholders).

- 5.1 Interventions are aligned with national/regional priorities and intended national/regional results.
- 5.2 Shared contextual analysis shapes the intervention designs and implementation.
- 5.3 Capacity analysis informs intervention design and implementation, and strategies to address any weakness found are employed.
- 5.4 Detailed risk (strategic, political, reputational, operational) management strategies ensure the identification, mitigation, monitoring and reporting of risks.
- 5.5 Intervention designs include the analysis of cross-cutting issues (as defined in KPI 2)
- 5.6 Intervention designs include detailed and realistic measures to ensure policy sustainability (as defined in KPI 12).
- 5.7 Institutional procedures (including systems for engaging staff, procuring project inputs, disbursing payment) positively support speed of implementation.

KPI 6: Working in a coherent regional cooperation network directed at leveraging/ensuring relevance and catalytic use of resources.

- 6.1 Planning, programming and approval procedures enable agility in regional cooperation when conditions change.
- 6.2 Regional cooperation/partnerships are based on an explicit statement of comparative advantage (e.g. technical knowledge, convening power/partnerships, policy dialogue).
- 6.3 Strategies or designs identify synergies to encourage leverage/catalytic use of resources and avoid fragmentation.
- 6.4 Key business practices (planning, design, implementation, monitoring and reporting) are co-ordinated with other relevant partners (donors, relevant IGOs, etc.), as appropriate.

- 6.5 Key information (analysis, budgeting, management, results etc.) are shared with strategic/implementation partners on an ongoing basis.
- 6.6 Clear standards and procedures for accountability to beneficiaries are implemented.
- 6.7 Participation with national and other partners in mutual assessments of progress in implementing agreed commitments.
- 6.8 Knowledge base to support is deployed programming adjustments and policy dialogue.

5.2.4 Performance management

Are NAMMCO systems geared to managing and accounting for results (in conservation and management of marine mammals in the North Atlantic) and the use of performance information, including evaluation and lesson-learning?

KPI 7: Strong and transparent results focus, explicitly geared to function.

- 7.1 Leadership ensures application of an organisation-wide Result-based management (RBM) approach.
- 7.2 NAMMCO strategies, including CGs strategies, based on a sound RBM focus and logic.
- 7.3 Results targets set based on a sound evidence base and logic.
- 7.4 Monitoring systems generate high quality and useful performance data.
- 7.5 Performance data transparently applied in planning and decision-making.

KPI 8: Evidence-based planning and programming applied.

- 8.1 A NAMMCO independent evaluation function exists.
- 8.2 Consistent, independent evaluation of results (coverage).
- 8.3 Systems applied to ensure the quality of evaluations.
- 8.4 Mandatory demonstration of the evidence-based planning to design new interventions.
- 8.5 Poorly performing interventions proactively identified, tracked and addressed.
- 8.6 Clear accountability system ensures responses and follow-up to and use of evaluation recommendations.
- 8.7 Uptake of lessons learned and best practices from evaluations.

5.2.5 Results management

Is NAMMCO assessing achievement of relevant contributions to regional cooperation, conservation and management of marine mammals in the North Atlantic in an efficient way?

KPI 9: Achievement of regional cooperation, conservation and management objectives and results (e.g. at the institutional level, at the regional/country level), and contribution to normative and cross-cutting goals (e.g. in relation to CGs and other IGOs policies).

- 9.1 Interventions assessed as having achieved their stated regional cooperation, conservation and management objectives and attain expected results.
- 9.2 Interventions assessed as having realised the expected positive benefits for target group members (including that with indigenous people).
- 9.3 Interventions assessed as having contributed to significant changes in national policies and programs, or needed system reforms.
- 9.5 Interventions assessed as having helped improve environmental sustainability/helped tackle the effects of climate change.
- 9.6 Interventions assessed as having helped improve good governance (as defined in KPI 2.1.d),

KPI 10: Relevance of interventions to the needs and priorities of CGs and other beneficiaries, and extent to which NAMMCO works towards results in areas within its mandate.

- 10.1 Interventions assessed as having responded to the needs/priorities of target groups (i.e., Member Countries, hunters, conservationists).

- 10.2 Interventions assessed as having helped contribute to the realisation of national marine mammal conservation and management goals and objectives.
- 10.3 Results assessed as having been delivered as part of a coherent response to an identified problem.

KPI 11: Results delivered efficiently.

- 11.1 Interventions assessed as resource/cost efficient.
- 11.2 Implementation and results assessed as having been achieved on time.

KPI 12: Sustainability of results.

- 12.1 Interventions assessed as having improved the conservation and management of marine mammals in North Atlantic.
- 12.2 Interventions assessed as having built sufficient institutional and/or community capacity for sustainability, or have been absorbed by CGs.
- 12.3 Interventions assessed as having strengthened the enabling environment for regional cooperation on conservation, management and research of marine mammals.

APPENDIX 7 - RESULTS FROM QUESTIONNAIRES

The Excel spreadsheet with all results of the survey carried out with the multi-choice questionnaire is downloadable from the NAMMCO website.