

Update for the PRP – details and examples related to the Nuuk declaration

(Prepared by G. Desportes)

Question from the PRP:

“The NAMMCO Council at its 2017 meeting adopted the "Nuuk Declaration". For each of the 5 bullet points that are the substance of paragraph 2 (beginning with "Considering...") please provide additional detailed information and specific examples.”

Considering the progress accomplished in the last 25 years towards the sustainable and responsible use of marine mammals within NAMMCO, and particularly:

- 1. better knowledge on marine mammal populations and their sustainable management,*
- 2. sound management advice that has contributed to increases in marine mammal population sizes,*
- 3. the increased coordination of the Parties' marine mammal research and monitoring, leading to a greater understanding of the role of marine mammals in the North Atlantic marine ecosystem,*
- 4. the significant improvements in hunting methods,*
- 5. the establishment of an effective observation scheme for hunting activities in member countries.*

(Document prepared by Geneviève Desportes with thanks to Daniel Pike for his valuable comments, 070818)

1. Better knowledge on marine mammal populations and their sustainable management.

1.1 Better information on stock status through regular assessment of hunted species

NAMMCO conducts regular **reviews and assessments** of most hunted species **and stocks**, including fin whales (1999, 2000, 2003, 2004, 2005, 2006, 2010, 2015, 2017), minke whales (2003, 2009, 2010, 2011, 2015, 2017), beluga (1999, 2000, 2001, 2004, 2005, 2009, 2012, 2015, 2017), narwhals (1999, 2004, 2005, 2009, 2012, 2015, 2017), walrus (1995, 2005, 2009, 2013, Baffin Bay 2015, coming 2018), grey seals (s (1996, 2003, 2011, 2016), harbour seals (2006, 2011, 2016). More *Ad hoc* assessments (meaning single, irregular and/or partial) have also been conducted for some species, pilot whales (1997, attempt 2011, partial 2012), bottlenose whale (1993, 1995), humpback whales (2010, 2017), harbour porpoise (1999, 2013, coming 2018 & 2019), ringed seals (1996).

Regular review and assessments of harp and hooded seals stocks have been conducted by the ICES/NAFO WGHarp and since 2016 ICES/NAFO/NAMMCO WGHARP and then reviewed by the NAMMCO SC (1992, 1998, 2005, 2013, 2014, 2016).

For some species, reviews have been conducted but concluded that essential data were missing to be able to conduct any assessment, such as killer whale (attempt in 1993), sei whale (attempt in 2010).

Since mid-2000, the NAMMCO SC reviews at each annual meeting the progress in data availability for each species in its purview (i.e., species which have been or are hunted) to consider whether conducting assessment of some stocks is possible and to advise on data and research needs.

Ringed (one assessment in 1996) and bearded seals are two species for which little data have been available on stock delineation, distribution, abundance or status. NAMMCO has encouraged its parties to collect the information needed for an assessment of the stocks and made recommendation on research priorities. Assessments should be carried out in 2020-21.

These reviews and assessments evaluate the status of the stocks and inform on sustainable catch levels when feasible, but also provide comprehensive recommendations on the information and research needed for better informing the assessment and therefore the management advice, as well as advice on prioritisation of information in regard of to their contribution to increasing the reliability of the assessment.

1.2 Better information on distribution, abundance and trends in abundance, and movements

1.2.1 Abundance data through sightings surveys

Cetaceans

The NASS series of surveys, conducted in 1987, 1989, 1995, 2001, 2007 and 2015, has produced important information on the population abundance of fin, blue, sperm, minke, humpback, sei, pilot and northern bottlenose whales and several species of dolphins. This unique long-term time series spread over more than 25 years allows the determination of trends in the abundance of even those species with slow reproductive rates.

The coordination of the NASS series by NAMMCO has ensured that survey procedures follow the highest standards and that the data collected are compatible between jurisdictions and comparable to other survey projects such as SCANS.

The NASS are likely the largest-scale wildlife surveys ever attempted, covering a maximum area of around 2 million square nautical miles, about the same size as Western Europe, and involving as many as 15 ships, 4 aircraft and 100 observers in a single survey. The distance covered by ships and planes while surveying has been as high as 40,000 nautical miles, a distance equivalent to about twice around the world. As many as 5,000 whales have been seen in a single survey.

Coordination of NASS and T-NASS surveys (with standards brought to those used in other large European surveys), and review of results in the NAMMCO Abundance Estimates WG.

Surveys for other species such as narwhal, beluga, harbour porpoise and bowhead whale are carried out at the national level but reviewed and used in assessments by NAMMCO.

Seals

Regular surveys have also been conducted for coastal seals as well as harp and hooded seals and walrus. These surveys are conducted by member nations but reviewed and used in assessments by NAMMCO.

1.2.2 Distribution and movements data through satellite tagging

Satellite tagging has been conducted by NAMMCO parties on several species including fin, minke, humpback and bowhead whales, pilot whales, narwhal and beluga and harbour porpoises in different stock areas, providing information on distribution, movements and mixing between stock areas. Tagging also provides data on diving which is used in deriving abundance estimates from surveys.

Satellite tagging has also been carried out on seals and walrus, including on species for which only poor abundance data exist such as ringed and bearded seals.

1.3 Better information on Removals

1.3.1 Direct catch

NAMMCO requests annual reporting of direct catch by all parties. In cases where there is uncertainty in catch reporting, NAMMCO has provided advice for improvement of data collection and regular validation of the data collected (e.g. Greenland with species not targeted by regulatory measures, Iceland with coastal seals, Faroese & Norway with coastal seals).

NAMMCO has advised that reporting of catches should be made mandatory for all species and the reliability of the reporting be evaluated.

1.3.2 By-catch

Monitoring of by-catch in NAMMCO parties has been initiated following the recommendations of the SC (See report of SC 4, [8.6 Grey seals] 8.6.1 Review and assessment, pp. 113, parag. 5&6).

NAMMCO established in 1997 a Bycatch Working Group under the remit of the Management Committee to support the acquisition by Parties of reliable data on bycatch.

Council 7 (1997), 4. MC, 4.3 Other business (pp. 28)

By-catch of marine mammals

The Council noted the decision of the Management Committee to establish a Working Group to work intersessionally to consider how the issue of by-catches of marine mammals could be addressed at its next meeting, noting the duties of States under article 61.4 of UNCLOS in this respect.

Following the recommendation of the SC, arguing that estimates of all removals, including by-catch, are required for conducting reliable stock assessments and that by-catch issues were therefore of scientific character, the Bycatch Working Group was transferred under the remit of the Scientific Committee in 2009.

The SC Bycatch Working Group makes recommendation for the acquisition of reliable data on bycatch, in particular for the, apparently, most impacted species; harbour porpoise, grey and harbour seals. It also reviews the estimate of by-catch provided by the Parties and provide recommendation for re-analysis when necessary.

It also requests the acquisition of reliable data allowing an evaluation of the by-catch risk in fisheries conducted by NAMMCO and other parties in the NAMMCO parties' jurisdiction.

1.4 Better management

Most assessment procedures used in NAMMCO have not been developed specifically by or for NAMMCO but within other fora. NAMMCO affiliated scientists have in many cases been involved in their development through their participation in other fora, for example the IWC Scientific Committee. Therefore, there is considerable expertise within NAMMCO on the specification and development of science-based management procedures. To make sure that this continues to be the case Council 26 forwarded the following new request to the SC:

“To conduct a review of the management procedures used by the Committee for generating management advice (RMP, AWMP, Bayesian assessment, Hitter Fitter, etc). The Committee should advise on which procedure is the most suitable for each species (or category of species) with the data that is currently available, while also meeting the management principles of NAMMCO. The Committee should further advise where additional data could allow for more suitable management procedure(s) to be implemented.”

Within the framework of the NAMMCO-JCNB Joint Scientific Working Group (for which NAMMCO is the logistic support), a completely new management tool was developed for migrating stocks of narwhal. It takes into account the particular social and stock structure of the species, such as the formation of summer aggregations in particular locales, each of which must have its own conservation status, spring and fall migrations that may pass through several hunting areas, and wintering grounds where several summer aggregations may mix. Catch allocation must take into account this structure, as narwhal may be hunted at any stage in their annual cycle with different implications for summer stocks.

The NAMMCO-JCNB Joint Scientific Working Group developed a model that allows managers to assign catches from different hunting locales within the range of the narwhal metapopulation that is shared by Canada and Greenland to the appropriate summering aggregation, based on hunting location, time of year and the known abundance and migratory characteristics of the summer stocks. The model includes all information that is available on narwhal movements including telemetry data, all abundance estimates, seasonal occurrence and historical catch data.

The development of this narwhal catch-allocation model, a completely new management tool, is an example of the work supported by NAMMCO and illustrative of how the right mix of expertise can solve a tricky management problem.

National management plans are also reviewed by the NAMMCO SC, both at the drafting levels and for reviewing the results, and recommendations for improvements are provided, latest the Norwegian management plans for coastal seals.

1.5 General

Over the years, the NAMMCO SC has forwarded to NAMMCO MCs and Council many research recommendations to member countries for research which would increase the reliability of the stock assessment and therefore the management advice forwarded to the Management Committees, generating better management advice from NAMMCO.

NAMMCO has always recognized the importance of obtaining the best expertise that is available. To this end, the budget of NAMMCO includes funding to bring non-NAMMCO experts to its working and expert groups, and to organise workshops on specific topics that include a wide representation. This wide expertise may not have been available, if its cost had to be supported by individual countries.

2. Sound management advice that has contributed to increases in marine mammal population sizes

Several cetacean species have shown substantial increases in abundance in recent decades in the North Atlantic, including humpback, fin and bowhead whales, despite being hunted by some NAMMCO members. These observed increases are partly due to historical overharvesting, followed, in more recent times, by sound management leading to reduced and sustainable harvesting regimes. Management advices for these species are provided both by the IWC (ASW for Greenland) and by NAMMCO.

Recoveries of narwhal, beluga and walrus stocks off Greenland can be directly attributed to the implementation of NAMMCO management advice. Harvest quotas were recommended by NAMMCO to Greenland for these three species. In some cases, the quotas recommended initially drastically reduced the harvests and therefore the livelihood and resources of the hunters and local communities (going from a yearly catch of over 600 belugas to a recommended quota of 100 for example (NAMMCO 2001, pp. 18 & 142)). Within a few years the recommended quotas were implemented (beluga in 2004, narwhal in 2004 for West Greenland and 2008 for East Greenland, walrus in 2007), and population increases were seen in the depleted stocks.

Examples of this are shown in Figure 1 which gives the population trajectories for West Greenland belugas and walruses and their positive inflexion after the implementation of the recommended quotas. Also see [Heide-Jørgensen et al 2016](#): Rebuilding beluga stocks in West Greenland).

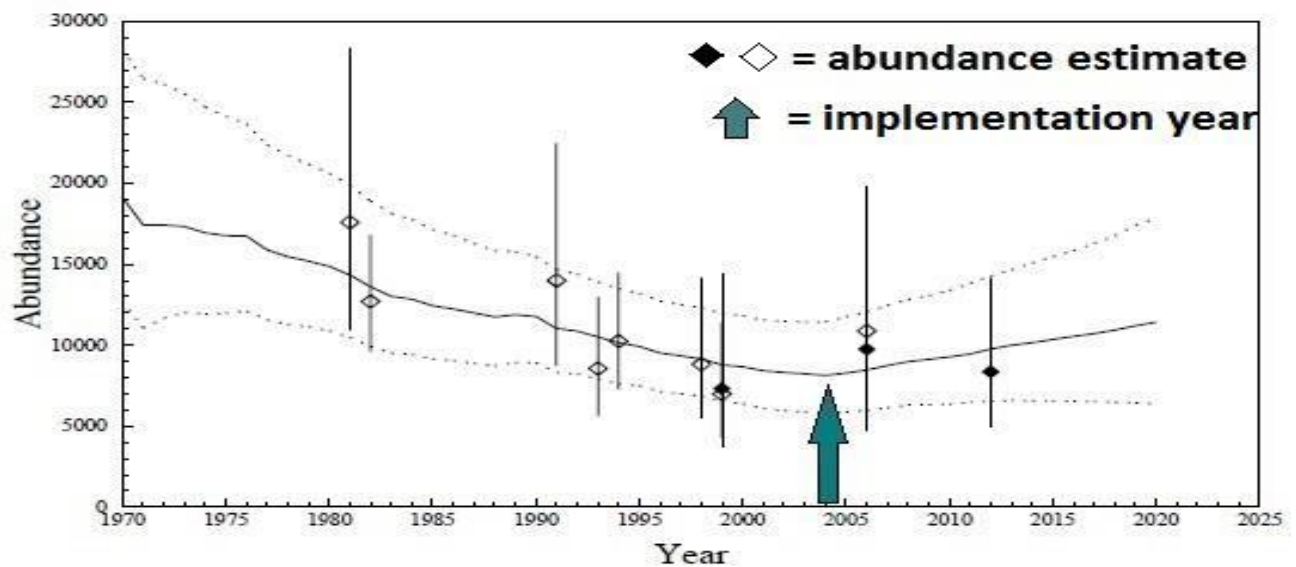
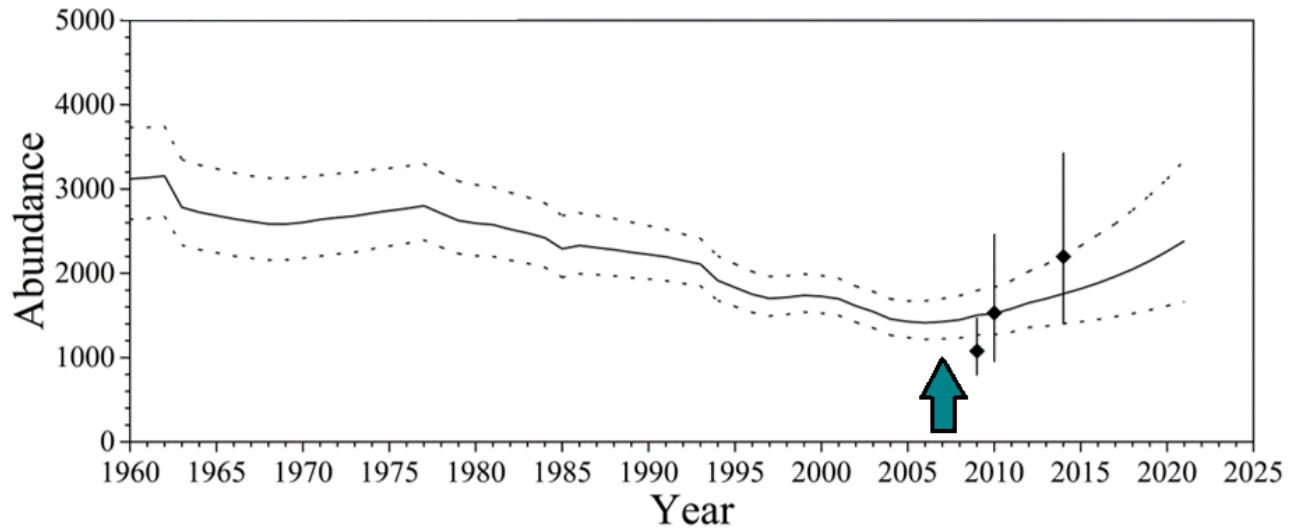


Figure 1. Population trajectories for West Greenland belugas (top) and walrus (bottom). Quotas for WG belugas were introduced in 2004 and for walrus in 2007 (green arrows).

3. The increased coordination of the Parties' marine mammal research and monitoring, leading to a greater understanding of the role of marine mammals in the North Atlantic marine ecosystem

See under 1, as well as the following examples.

- Pilot whale tagging in the Faroes started as a collaboration between “Greenlandic” and Faroese scientists. There are a lot of exchanges between NAMMCO scientists in and on satellite tagging, e.g., drugs used for anaesthesia (e.g. in the case of walrus) when necessary, attachments, with participation to each other field work.

- There are a lot of exchanges between NAMMCO scientists on the development and improvement in survey methodologies, both for cetacean and seal surveys. A good example of that is the development of the geometer during the preparation of NASS 2015. This is a new device allowing the automatic recording of the angles to the sightings during aerial surveys. It was used both in the Greenlandic and Icelandic 2015 NASS aerial surveys and since in other surveys. It is now also used by other European surveys as well. Experimentation par Parties scientists with new techniques for seals surveys, like for example the use of digital cameras and thermal infrared (IR) camera as well as the use and launching of UAVs (Unmanned Aerial Vehicles), both success and failure, is reported to and followed by the SC.

- Data and results are put together to allow wider spatial analyses to better understand the drivers generating the changes in distribution observed in the North Atlantic. An example of this is the project “**Oceanographic features driving decadal-scale changes in cetacean distribution and abundance in the North Atlantic**”, which is based on Icelandic, Faroese and Norwegian abundance data generated through the NASS series. See a short description of the project in Appendix 1.

As a mean of strengthening the operations of the SC and achieving a closer co-operation between members intersessionally, SC 8 (2000) proposed the establishment of a Science Fund, but this was not supported by Council (CN 11 - 2002, AR 2001 pp. 21, 3.2.2).

AR 2000 / Report of the Scientific Committee

11. NAMMCO SCIENCE FUND – p. 160

... The purpose of the Science Fund would be to enable the NAMMCO Scientific Committee to conduct research projects that would assist in the deliberations of the Scientific Committee. The projects could either be directly relevant to specific requests, or of importance for the development of techniques, methods, models or background information pertinent to the work of the Scientific Committee. A project could also involve the development and formulation of a primer for a larger project. Proposals could either be developed with the involvement of Scientific Committee members, or by others at the invitation of the Scientific Committee. Uninvited proposals would not be accepted. The Scientific Committee would administer the Science Fund, and would be responsible for proposal approval, funding and project monitoring.

At SC 22, at the instigation of the new GS, the SC reopened its discussion on ways of strengthening the operations of the SC and achieving closer co-operation between members intersessionally. Among other ideas, it decided to propose to Council 26 to fund a joint project on the development of a “super satellite tag” for minke whales. This tag would represent an important technical development which would generate better information on minke whale movements but possibly also other species [as the tag designed for minke whales would be small enough to be used on a range of species], therefore engendering better science and by the same token a better management of whale stocks. All NAMMCO countries would have interest in the development of the tag, and the project would therefore constitute a good opportunity and flagship for NAMMCO. See in Appendix 2 the extracts of the report of the SC and Council reporting the development of the ideas by the SC, presentation to and answer by Council 26.

4. The significant improvements in hunting methods

People’s right to utilise natural resources lies at the very core of NAMMCO, as does the obligation to hunt in a sustainable and responsible manner. For NAMMCO, the use of marine mammals is ethically defensible if it is sustainable and does not cause unnecessary suffering to animals.

In 2004, a Workshop on Hunting Methods for Seals and Walrus (NAMMCO 2005) recommended that “...hunters should make every effort to reduce unnecessary suffering by hunted animals, by minimizing killing times and avoiding letting injured animals escape. Such efforts should have priority for all hunts.”

To this end, NAMMCO places priority on developing the best weapons and hunting techniques to ensure as humane a hunt as possible and to reduce the number of animals that are struck and lost. NAMMCO finds no excuses for continuing using weapons or techniques that are not optimal. Methods should continue improving along with new technical developments. Weapons and hunting techniques have been changing since the stone age, and hunters must continuously adapt to improvements that increase animal welfare and reduce struck and lost.

The NAMMCO Committee on Hunting Methods provides advice on hunting methods for the marine mammals relevant to NAMMCO member countries. The advice given is based on the best available scientific findings, technological developments and traditional and local knowledge, with due consideration given to safety requirements, animal welfare concerns and the efficient utilisation of the animal.

The increasing effectivity and efficiency in hunting methods following from the use of high-tech hunting gear, such as harpoon guns and penthrite grenades, contribute to decreasing the length of the chase and the time to death, thus accommodating concerns over welfare issues.

Highly successful improvements in hunting methods have been achieved within NAMMCO's jurisdiction and by NAMMCO Parties. Below follow some examples.

- New and more effective weapons and hunting techniques were designed and developed for use in the Norwegian minke whaling and the Alaska Eskimo bowhead hunt.
- The introduction of the Whale grenade-99, implementation of new hunting practices and training of hunters have significantly increased the instantaneous death rate and reduced survival time and losses of whales in Norway, Iceland and Greenland. The instantaneous death rate in the Norwegian minke whale hunt has, for example, increased from 17% in 1982 to 82% in 2012 due primarily to the development of the penthrite grenade.
- The method developed to be used in the Faroese pilot whaling significantly improved animal welfare with the banning of the original lance from boats, the development of the spinal lance and the blowhole hook to replace the traditional knife and whale hook and their mandatory use, added to the mandatory requirement of hunter training.
- NAMMCO has carried out shooting trials to examine the effect of different rifle projectiles to make hunting safer and more effective.

Furthermore, efficient killing – with respect to time and pain - depends on the experience and education of the hunters. NAMMCO has always given a strong emphasis to the importance of hunter training. To this end NAMMCO has developed hunting manuals for the different whale hunts in the NAMMCO area. On the instigation of NAMMCO, training courses have become mandatory for most kinds of hunting in NAMMCO countries (Icelandic and Norwegian whale hunts, Faroese pilot whaling, Norwegian sealing).

In effect, NAMMCO is today the only international organisation specifically and successfully working on the improvement of marine mammal hunting methods. NAMMCO is also the only international organisation that has implemented an Inspection and Observation Scheme for monitoring marine mammal hunting activities in its area, which - acting alongside but independently from the national inspection schemes - supports transparency.

NAMMCO encourages other MM hunting nations in improving hunting methods. It does that by always inviting experts and hunters from other countries to its Expert Groups and reviewing killing data from other countries.

It is noteworthy that killing data from Canada and Japan are reported to NAMMCO and not to the IWC, and that data from USA and Russia are also being presented to NAMMCO Expert Groups.

5. The establishment of an effective observation scheme for hunting activities in member countries

The purpose of the observation scheme can be read in the Section B of the Provisions of the Joint NAMMCO Control Scheme for the Hunting of Marine Mammals.

B.1 Introduction

The purpose of establishing an 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.

B.2 Duties and competence

B.2.1 Observers are responsible for overseeing hunting activities and for observing whether or not these are carried out in accordance with decisions made through NAMMCO and national regulations. Observers have no authority of jurisdiction, and consequently cannot intervene in the hunting, or other activities connected with the hunting.

Observations can take place on board a vessel, or on shore, in connection with flensing, storage and landing/delivering of the catch.

NAMMCO is the only organisation which has agreed upon, developed and funds an Inspection and Observation Scheme. The IWC does not have a comparable program.

Assessing the actual effectiveness of the implementation of the NAMMCO Observation Scheme would require that its goals and (measurable) objectives were defined, so one could assess whether they are being met. These are presently not clearly defined. However, the review of the implementation currently carried out likely points to a willingness of the Parties to improve the Observation Scheme, define clear objectives and make the implementation effective and efficient.

Besides the establishment of this observation scheme, it should also be noted that NAMMCO Parties developed and agreed upon a standard of common elements for national inspection schemes for whaling from vessels with a harpoon gun on board, both for near-coast whaling operations and off-coast whaling operations. They shall represent the minimum requirement in the random control, included in national inspection schemes. In addition to these elements, the individual member countries may, however, include new elements as considered appropriate in relation to national laws and regulations for their specific whaling activities.

Another important element of the monitoring of whaling activities within the NAMMCO framework was the design and development of the automated electronic monitoring system for minke whaling, the “Blue Box”, implemented in the Norwegian minke whale hunt in 2007. The system is unique and allows the continual and totally independent control of some aspects of the minke whaling operations.

Appendix 1. “Oceanographic features driving decadal-scale changes in cetacean distribution and abundance in the North Atlantic”

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Background

Since 1987, Norway, Iceland, the Faroe Islands and Greenland have been conducting surveys for cetaceans in the North Atlantic, collectively known as the North Atlantic Sighting Surveys (NASS)¹. The primary rationale for these surveys is the estimation of abundance of whale species subject to whaling to inform management. The time series of cetacean data collected from these surveys is arguably the most comprehensive in the world at such a large spatial and temporal scale (e.g. see Figure 1). Abundance of, *inter alia*, fin, minke, humpback and pilot whales has been estimated using so-called design-based methods that give results for survey blocks at a rather coarse spatial scale.

Scientific aims, methods and expected outcomes

Since these surveys began three decades ago, major changes in the distribution of whales have been observed, coincident with changing oceanography of the North Atlantic. This project aims to maximize the value of this remarkable time series of data by using it to improve understanding of the underlying ecological drivers of the changes in distribution and abundance of whales in the central and northeast Atlantic, and to predict how continuing ocean warming (as predicted by climate models) may affect cetacean populations in the future.

Data for the central and NE Atlantic have been made available by the governments of Norway, Iceland and Faroe Islands². The aims will be achieved using statistical models to explore the influence of a range of oceanographic features (e.g. seabed depth, water temperature, chlorophyll concentration, presence of ocean fronts) on the distribution and abundance of whales. Focal species are fin, humpback, minke, sperm, northern bottlenose and, pilot whales. We expect to find that the distribution of different species will be best explained by different combinations of environmental features because of their different ecological roles in the North Atlantic ecosystem.

Applied value of the project

As well as improving our understanding of the what is causing the observed changes in the distribution and abundance of whales, the results are valuable for management in a number of ways.

Results can be represented as maps to illustrate how spatial distribution changes over time, and used to produce so-called model-based abundance estimates for any defined area, not just for the coarse-scale pre-defined survey blocks. Thus, for example, pilot whale abundance could be estimated for the area believed to encompass the population subject to whaling in the Faroe Islands, allowing an assessment of the impact of whaling on the population. Estimates could also be produced for areas relevant to conservation and management that are smaller than the pre-defined blocks.

The results of the models can also (with appropriate caution) be extrapolated to unsurveyed areas. Thus, abundance could be estimated for areas that were unable to be surveyed in a particular year for logistical reasons, allowing trends in abundance over time to be determined for a consistent area of interest, facilitating a more robust assessment of conservation status.

The fine-scale information on distribution generated by the models is also valuable to inform environmental impact assessments of the potential impact of, for example, noise generated by shipping or seismic surveys.

Funding requested

¹ Since 1995, Norwegian Independent Line-transect Surveys (NILS) have been in the form of a “mosaic” covering the NE Atlantic over a 6-year cycle.

² Data from the 2016 survey of east Greenland are being sought.

The project is being conducted by a PhD student. The total cost over 4 years (student fees and stipend) is £100,000, 85% of which has been covered by Colciencias (government of Columbia) and the University of St Andrews. Funding is requested for £15,000 to cover the final year student stipend.

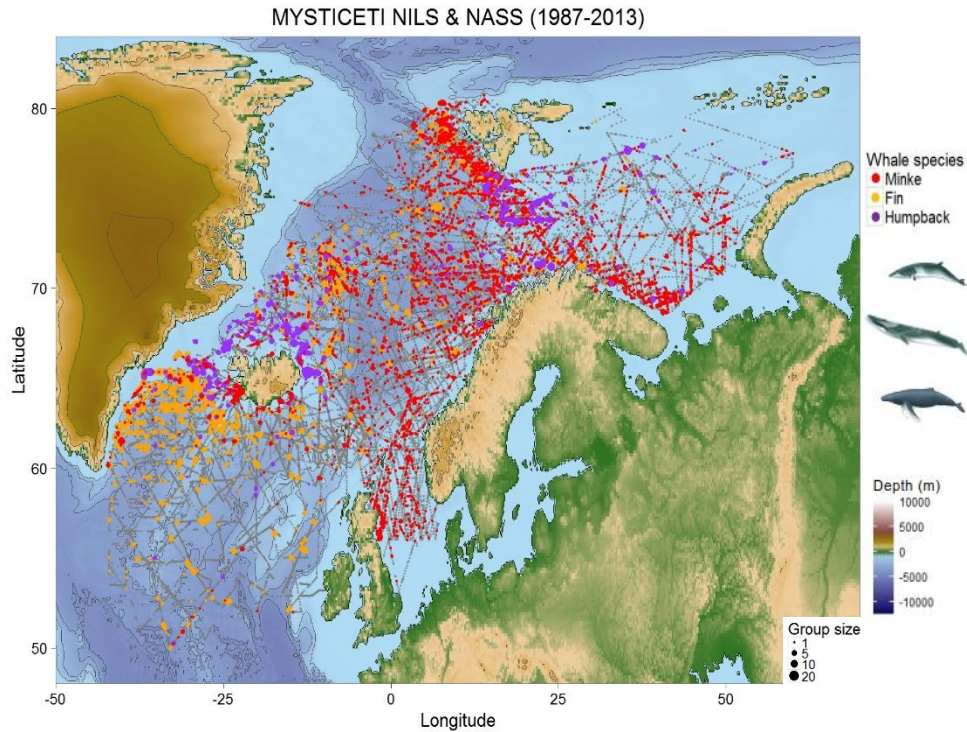


Figure 1. Summary of NILS & NASS survey effort and sightings of minke, fin and humpback whales. Effort is depicted by segment mid-points as grey-dots. Sightings are shown as coloured dots, the size of which indicates group size. The map was plotted using the geographic coordinate system WGS84 & overlaid over the bathymetry of the area (ETOPO).

Appendix 2. The *super tag* project

At SC 22, on the suggestion of the new GS [See SC Report 2015, 15.2 New GS vision for NAMMCO], a number of ideas for strengthening the operation of the SC, and the SC meetings, were discussed (see point 12.3 and 12.4). The discussion on a common development of a super-satellite tag came into this framework and can be followed in the extracts of the SC and Council reports.

AR 2016 / Report of the Scientific Committee

12. WORK PROCEDURES IN THE SC

12.1 Ideas for future meetings of the SC, pp. 149

The SC agreed that involvement of the Vice-Chair in the preparation and running of the meeting, as well as in the reporting to the Council meetings was positive and should continue.

At SC-22, the SC agreed to continue discussing at the SC-23 meeting the meeting procedures which had been suggested to make the meeting as efficient and effective as possible and to strengthen the SC overall.

Suggestion no.1 – *“Strengthening scientific collaborations between the scientists in the SC. Among other options for joint projects of interest to all NAMMCO countries, one example is to resurrect the idea of developing satellite-tagging expertise within the SC. This could be done by requesting funds from NAMMCO. Another idea is where SC members could form stronger collaborations is a genetics study.”*

As more and more information necessary to stock assessment derive from satellite tag studies (e.g. availability bias, stock discreteness, changes in distribution...), the SC agreed that a useful and beneficial cooperative project under NAMMCO would be the design of a “super” satellite tag (increased attachment and transmission period, increased sensitivity and capabilities, easier deployment, etc. smaller, longer, better), for cetacean research, as seal tagging has been in general more successful than cetacean tagging. A preliminary project description would be developed by a small group, under the leadership of Heide-Jørgensen, and would be presented to Council 25 for approval.

Suggestion no. 2 – *“Add a new agenda item on “Collaborative work within the SC”. The SC agreed that this item would come at the beginning of the meeting so that it can be discussed throughout the meeting.”* The SC agreed to this suggestion and that the report of the “Super Tag Group” could be on the agenda of the next SC meeting.

Suggestion no. 3 – *“Hold the SC meeting every other year, with the alternative year being a tele/video conference. This is in response to the financial concerns related to sending the full complement of SC members to the meetings. This suggestion will be discussed further at the next meeting.”* The SC agreed to continue holding a face to face meeting each year and alternate the location between NAMMCO countries.

Suggestion no. 4 – *“Encourage SC members in bringing presentations (e.g., Powerpoint, videos) highlighting research projects.”* The SC agreed that this should be encouraged. Furthermore, the country organising the SC meeting should arrange for a more in depth presentation on a scientific project or subject of interest to the work of the SC. This presentation could be made by a member of the SC or a local scientist.

AR 2017 / Report of the Scientific Committee

5.4 Ideas for future meetings/furthering cooperation in SC, pp. 18

5.4.2 Development of a “super satellite-tag (focused on common minke whales)”

Tracking by satellites has long been recognized as one of the most important and promising techniques available for studies of movements, migrations, behaviour, diving, stock identity and habitat use of cetaceans. Advances have been accomplished by studies of small cetaceans, the techniques are however not well developed for use on large baleen whales that are too big to be captured and handled at sea. SC 23 asked Heide-Jørgensen to develop a project proposal on development of a tag for satellite tracking for cetacean

research in the North Atlantic. The common minke whale is the target species with the reasoning that what works for the common minke whale will work for all other whales.

Hansen presented the proposal (Appendix 4) in the absence of Heide-Jørgensen. The project which is three-fold entails a) the technical development of the tag, b) a programme to study movements and changes in occurrence of common minke whales in the North Atlantic and c) a shared NAMMCO data base of tracking data.

In all four NAMMCO countries it would be of great importance to include a reliable, cheap and well-tested satellite tracking system in the toolbox for cetacean studies. It would also be important to develop a NAMMCO program that combine forces to use satellite tracking methods to solve major management issues that cannot be addressed with other techniques. It cannot be expected that research groups outside NAMMCO will focus on developing satellite tracking techniques that will assist in the research and development needed for the on-going NAMMCO assessment process. One example is the seasonal movements and long-term distributional changes of common minke and fin whales, species of importance to all NAMMCO member countries.

The proposal describes how a joint NAMMCO satellite-tracking program could be developed and what would be required to reach a point where the technique can be used as an efficient and reliable field technique. The total cost of all three elements of this project 2,300,000 NOK.

Discussion

SC welcomed the proposal and underlined the importance of developing a tag that functions and that will remain attached for at least a year cycle. SC agreed to recommend to Council to prioritise this kind of project and asked for approval to work towards such a project.

The importance of tag size, distance to animal and attachment area, injection depth and rejection/ retreat time for the tag was discussed. Animal welfare issues related to satellite tagging especially when the tags go deep into the animal was underlined.

The SC agreed with the proposal that the common minke whale was a good target species, because it is a species which has proved difficult to successfully tag, and a tag that works for common minke whales will likely work for larger whales and smaller toothed whale species.

The SC acknowledged that worldwide, many scientists are working on developing satellite tagging systems, but that at the same time the “whale community” was not especially tuned into cooperating and sharing experience when it comes to satellite tagging development.

The SC agreed that a small group of SC members (led by Heide-Jørgensen) should either meet in person or via correspondence to discuss the steps to move forward with the proposal. The SC discussed that it might be useful to engage other interested parties in the development of a new “common minke satellite-tag”, so the cost of the development could be shared. The SC also discussed preparation of a possible review paper on tagging systems presently in use.

AR 2017 / CN 26 – 4. Scientific Committee, 4.3 Other business, pp. 9

Haug presented a project proposal from the SC on the development of a tag for satellite tracking of cetacean in the North Atlantic. The common minke whale was the target species as i) there has been so far little tagging success for this species and distribution in winter remains largely unknown, ii) with the reasoning that what works for minke whales will also work for all larger whales and likely also for many smaller cetaceans, like pilot whales.

The project which is three-fold entails a) the technical development of the tag, b) a programme to study movements and changes in occurrence of common minke whales in the North Atlantic and c) a shared NAMMCO data base of tracking data. The proposal described how a joint NAMMCO satellite-tracking program could be developed and what would be required to reach a point where the technique can be used as an efficient and reliable field technique. The total cost of all three elements was tentatively evaluated to NOK 2 300 000 NOK.

Minke whales and/or the tagging of smaller species like pilot whales are of interest to all NAMMCO member countries and the project represented a good opportunity for a closer research cooperation among SC members. The SC had agreed that a small group of SC members (led by Heide-Jørgensen, GL) should discuss the steps to move forward with the proposal, if Council supported the proposal.

Comments:

All member countries expressed their support to the project. They saw it as an important technical development which will generate better information on minke whale movements but possibly also other species, therefore engendering better science and by the same token a better management of whale stocks. Therefore, and because it is a joint project involving all NAMMCO countries, it constitutes a good opportunity and flagship for NAMMCO.

Council tasked FAC to consider the projects financial implications and propose avenues for funding. Desportes indicated that the 2018 budget allowed the chair of the project to meet tag developers at the next meeting of the European Cetacean Society.