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**Action requested:**

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**GREENLAND**  
**PROGRESS REPORT ON MARINE MAMMALS 2015**

Greenland Institute of Natural Resources. Catch, by-catch and strandings statistics provided by the Ministry of Fisheries, Hunting and Agriculture

## **I. INTRODUCTION**

This report summarizes the research on pinnipeds and cetaceans done in Greenland in 2015 by The Greenland Institute of Natural Resources (GINR), in collaboration with several organizations.

## **II RESEARCH 2015**

### **A Species and stocks studied**

#### **Pinnipeds**

- Walrus *Odobenus rosmarus* – Northern Baffin Bay
- Hooded seals *Cystophora cristata* –Western Atlantic
- Harbor seal *Phoca vitulina* – Central West and South Greenland
- Bearded seal *Erignathus barbatus* – Baffin Bay and South Greenland
- Ringed seal *Pusa hispida* - West and East Greenland
- Harp seal *Pagophilus groenlandicus* – West Greenland

#### **Cetaceans**

- Narwhal *Monodon monoceros* - West and East Greenland
- Beluga *Delphinapterus leucas* –East Greenland
- Harbour porpoise *Phocoena phocoena* – West Greenland
- Sperm whale *Pyseter macrocephalus* – West and East Greenland
- Bowhead whale *Balaena mysticetus* –West Greenland
- Humpback whale *Megaptera novaeangliae* - West and East Greenland
- Fin whale *Balaenoptera physalus* – West and East Greenland
- Minke whale *Balaenoptera acutorostrata* – West and East Greenland

### **B Field work in 2015**

#### **Walrus**

GINR did not carry out fieldwork with walruses in 2015. Work with this species consisted on analyses of telemetry data from the North Water Polynya and writing of a book on user's knowledge, from interviews carried out in 2010.

## Seals

The seal-work in 2015 was mainly focused on ringed seals. The tagging of ringed seals in Sermilik (Southeast Greenland) and in Kangia (Jacobshavn Icefjord, West Greenland) with satellite-linked data-loggers continued in 2015. This study provides a time-series (starting in 2012) of seal behavior and the temperature and salinity in the water column in those two fjords. In 2015 material for a DNA study, a study of cranial-morphometric and a study of ringed seal diet was collected in Kangia.

## Cetaceans

To better understand their foraging behaviour and in preparation for future studies of the effect of human disturbance on cetaceans, narwhals from East Greenland were equipped with temperature sensitive stomach probes, coupled with acoustic tags, heart rate sensors and satellite transmitters. In addition, hydrophones were temporarily moored at the bottom of the fjord close to GINR's field station in Scoresby Sund.

To better advise the Government of Greenland regarding the effect of oil exploration and other human activities in the narwhals of Melville Bay, moorings for passive acoustic monitoring of narwhals were deployed near selected glaciers in 2014 and recovered in 2015.

Biological samples from the catch of harbor porpoises were collected in Maniitsoq during summer 2015, as part of a PhD study on the life history and ecology of harbor porpoises.

Also in Maniitsoq, Satellite senders were remotely attached with harpoons to fin whales and minke whales to obtain correction data for estimates derived from aerial surveys and learn more about their movement patterns.

As part of NAMMCO's T-NASS, there were aerial surveys for cetaceans during summer 2015 in East and West Greenland. The East Greenland Survey was financed by NAMMCO, through a Norwegian contribution.

As part of a comprehensive series of studies on the ecology, abundance and stock structure of bowhead whales, carried out by GINR in cooperation with other institutions, hunters from Qeqertarsuaq collected biopsies from bowhead whales in Disko Bay between March and May. The samples are being used for sex determination, genetic identification and stock identity. The long-term studies of bowhead whales in Disko Bay for 2015 focused on testing technology for combining satellite telemetry and recording sounds on the surface of whale bodies, in order to better understand the effect of sound from seismic air guns. In addition, oceanographic tags that record temperature, salinity, depth and position are under development. Furthermore, postdoctoral research focusing on the singing behavior of bowhead whales and the effects of anthropogenic noise continued.

As in previous years, the occurrence and site fidelity of humpback whales in Godhåbsfjorden (Nuuk) was investigated using photo-identification. Pictures of humpback whale flukes and dorsal fins were also provided by the public and tour operators in Godhåbsfjorden and Disko Bay. In addition, biopsies were obtained from humpback whales in Godhåbsfjorden and satellite tags were deployed.

A study of the ecology, movements and occurrence of large whales in East Greenland that started in Tasiilaq in 2013 continued in 2015. Methods photo identification, biopsy darting, satellite telemetry, passive acoustic monitoring, oceanographic measurements and distribution of potential prey.

As part of the requirements for obtaining a whaling licence, hunters provided GINR with tissue

samples from minke whales, fin whales and humpback whales.

The Danish Centre for Energy and Environment (DCE), University of Aarhus, maintains a database with observations collected by dedicated marine mammal and sea bird observers on board vessels carrying out seismic surveys under licences provided by the Bureau of Minerals and Petroleum.

### **C Laboratory work in 2015**

Laboratory work carried out in 2014 included the analysis of stomach samples from seals, fish and harbour porpoises in Nuuk, as well as genetic analyses of bowhead whales at the University of Oslo and genetic analyses of harbor porpoise..

Sound recordings from moorings in West and East Greenland are being analyzed for estimates of background noise and seasonal occurrence of cetaceans and bearded seals, as well as monitoring of seismic exploration.

### **D Other studies in 2015**

A number of desktop studies were carried out during 2015, including analysis of catch statistics for a number of species and assessments of narwhal and beluga for scientific working groups under NAMMCO/JCNB and of large whales for the IWC.

### **E Research results in 2015**

The majority of research results from the fieldwork of 2015 are not available yet.

## **III ONGOING RESEARCH IN 2016**

The time-series of ringed seal tagging in Sermilik (Southeast Greenland) and in Kangia (Jacobshavn Icefjord, West Greenland) continued in 2016.

A search for seal colonies and bird colonies along the Southeast Greenland coast was finished in 2016. The first leg Cape Farewell-Tasiilaq was done in 2014 and the second leg Ittoqqortoormiit-Tasiilaq was done in 2016. Large parts of this coast is rarely visited by people and it could therefore potentially host undiscovered harbor seal or grey seal colonies. The area is dominated by drift ice along the coast and glacier ice in some of the fjords. A complete coverage from boat was therefore not possible, but large areas were covered without finding new seal colonies, but numerous new bird-colonies were found.

A camera and a buoy that record seal-sounds was also put out in the southernmost harbor seal colony near Cape Farewell where grey seals were seen in 2009 and 2010 in the hope to detect whether grey seal still are in the area.

In order to understand the stock delineation and to obtain complementary data for abundance estimates, GINR runs a series of satellite telemetry studies. Target species in 2016 were narwhals in East Greenland, as well as fin and minke whales in Maniitsoq, West Greenland.

Satellite telemetry of narwhals in East Greenland was complemented with the use of sensors to document feeding events, heart rate and received sound levels to develop techniques for assessing the impact of anthropogenic noise. In East Greenland, telemetry studies in

Scoresbysund started in 2010. A pilot narwhal tagging project was carried out in Kangerlussuaq fjord, East Greenland in August 2016.

Also in August 2016, an aerial survey of narwhals was carried out in East Greenland

As in previous years, the long-term studies of bowhead whales in Disko Bay for 2016 focused on testing technology for combining satellite telemetry and recording sounds on the surface of whale bodies, in order to better understand the effect of sound from seismic air guns. In addition, oceanographic tags that record temperature, salinity, depth and position are under development.

Collection of identification pictures taken by the public of humpback whales flukes and dorsal fins from West Greenland continued throughout 2016. In Nuuk, fieldwork on humpback whales in 2016 included photo-identification, biopsy sampling and satellite telemetry.

Studies of large whales in Tasiilaq, Southeast Greenland continued in 2016, and were include photo identification, biopsy darting, satellite telemetry, passive acoustic monitoring, oceanographic measurements and distributin of potential prey.

In cooperation with the Marine Reseach institute in Iceland, MMSO (marine mammal and seabird observrs) were placed in two research vessels doing transects for mackerel abundance.

#### **IV        ADVICE GIVEN AND MANAGEMENT MEASURES TAKEN**

Advice and quotas for cetaceans and pinnipeds in the calendar year 2015 are summarized in table 1. Actual catches are given in Appendix 1.

Table 1. Overview of management advice per stock in 2015, the year of survey used in assessment for advice valid in 2015, the year of the most recent survey (by the fall 2016), the quota or other management measures used in 2015 and the potential removals if all the quota was taken. Potential removals include catches in Greenland, catches in Canada for shared stocks and estimated struck but lost animals. Potential removals for narwhals given under the assumption that hunters report struck and lost animals

<b>Species - stock</b>	<b>Year of survey used for advice in 2015 (year of last survey)</b>	<b>Advisor</b>	<b>Advice</b>	<b>Quota 2013/ Management measure 2013</b>	<b>Potential removals</b>
Harbour seal	2014 (2015)	NAMMCO	Total protection	Protected since 2010	-
Grey seal	2009 (2009)	NAMMCO	Total protection	Protected since 2010	-
Harp seal	2013 (2015)	ICES/NAFO	No concern	No catch limit	-
Hooded seal	2013 (2015)	ICES/NAFO	No concern	No catch limit	-
Walrus - Baffin Bay	2014 (2014)	NAMMCO	93 or less removals	Quota of 86 <sup>1</sup>	103
Walrus - Davis Strait / Baffin Island	2012 (2012)	NAMMCO	100 or less removals	Quota of 69	98
Walrus - East Greenland	2008 (2008)	NAMMCO	20 or less removals	Quota of 18	20
Beluga - West Greenland	2012 (2012)	JCNB (& NAMMCO)	310 or less removals	Quota of 310 <sup>2</sup>	345
Beluga - Qaanaaq	2014 (2014)	JCNB (& NAMMCO)	20 removals acceptable	Quota of 20	20

1 The actual quota was 83, as 3 walruses were removed due to over catch in 2014

2 The actual quota was 345, as it included carry over from quota not used in 2014

Narwhal - Inglefield Bredning	2007 (2007)	JCNB (& NAMMCO)	85 or less removals	Quota of 85	85
Narwhal - Melville Bay	2014 (2014)	JCNB (& NAMMCO)	81 or less removals	Quota of 81	81
Narwhal - Uummannaq	-	JCNB (& NAMMCO)	85 or less removals	Quota of 85	85
Narwhal - Disko Bay area	2006 (2012)	JCNB (& NAMMCO)	59 or less removals	Quota of 59	59
Narwhals - Ittoqqortormiit	2008 (2008)	NAMMCO (& JCNB)	70 or less removals	Quota of 70	70
Narwhal - Tasiilaq	2008 (2008)	NAMMCO (& JCNB)	18 or less removals	Quota of 28	28
Bowhead whale – West Greenland / Arctic Canada	2006 (2013)	IWC	5 removals acceptable	Quota of 2	2
Humpback whale – West Greenland	2007 (2015)	IWC	10 removals acceptable	Quota of 10	10
Fin whale – West Greenland	2007 (2015)	IWC	19 removals acceptable	Quota of 19	19
Minke whale – West Greenland	2007 (2015?)	IWC	164 removals acceptable	Quota of 164	164
Minke whale – East Greenland	2007 (2015)	IWC	12 removals acceptable	Quota of 12	12

According to legislation, animals that are struck but lost should be reported and will be taken from the quotas. However, the scarcity of reports suggests that there is underreporting of struck but lost animals for beluga, narwhal and walrus. The two stocks of walrus in West Greenland are also hunted in Canada. In consequence, walrus quotas are lower than the recommended removals to allow for struck but lost animals and for harvest in Canada. There is an issue in this respect with the quota from Qaanaaq (Baffin Bay stock), as the Department of Fisheries, Hunting and Agriculture concluded, based on dialogue with hunters, that the 15 % loss rate used by NAMMCO in the assessment, was not appropriated for this area. As a consequence, the quotas were set at a level that, when using NAMMCO's 15 % loss rate, result in a number of walruses killed that is higher than the advice.

With the exemption of narwhals in Tasiilaq, where the quota was raised by 10 narwhals, and the above mentioned walrus in Qaanaaq, all the quotas of cetaceans and pinnipeds in 2015 were in accordance with biological advice.

Quotas for large whales are normally set by the IWC. On its meeting in 2014, the IWC agreed upon quotas for the remaining years of the block period 2015 – 2018. The IWC quotas were implemented.

As something new, CITES Non Detriment Findings report (NDF) was issued as one document for all marine mammals in Greenland. The intention of GINR, as CITES scientific authority, is to update this NDF every year. The NDF for 2016 compares catches and advice for 2013, 2014 and 2015. The species targeted are marine mammals in CITES appendix II (minke whale in West Greenland, narwhal, beluga, harbor porpoise, pilot whale, killer whale, white beaked dolphins and polar bear) and walrus, which are in appendix III, but have been deemed as species of interest by the EU and the Government of Greenland. The NDF concluded that as a whole, in the period 2013-2015, catches have followed the advice from NAMMCO, JCNB or IWC for all stocks, except narwhals in Inglefield Bredning, Melville Bay, Ittoqqortormiit and Tasiilaq, and walruses in Qaanaaq. For harbor porpoise, pilot whale, killer whale, dolphin and polar bear, it was not possible to conclude whether catches should be deemed as sustainable, as there is no biological advice for these species.

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

## VV PUBLICATIONS AND DOCUMENTS (2015 ONLY)

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