SC/61/RMP 8

Report of the Norwegian 2008 survey for minke whales in the *Small Management Area* ES - Svalbard

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ABSTRACT

As part of a six-year program over the period 2008-2013 with the aim to get a new estimate of minke whale abundance in the Northeast Atlantic, waters within the Svalbard archipelago comprising the *Small Management Area* ES, was surveyed with two vessels during the summer 2008. Four blocks were surveyed but some areas were not covered due to ice conditions or time constraints. About 2,600 nautical miles of primary search effort was conducted within the surveyed blocks. The most common species sighted were minke whales, fin whales, humpback whales and white-beaked dolphins. In addition a few sightings were made of blue whales, sperm whales and Northern bottlenose whales. Opportunistic collections were also made of 33 biopsy samples from humpback and fin whales and more than 80 photo identifications of humpback whales, blue whales, minke whales and fin whales.

MONITORING, SURVEY - VESSEL, ATLANTIC OCEAN, COMMON MINKE WHALE

INTRODUCTION AND OBJECTIVES

The management of Norwegian minke whaling is based on the Revised Management Procedure (RMP) developed by the IWC Scientific Committee (IWC 1994). RMP requires a monitoring program, since input data for RMP include time series of annual catches and of absolute abundance estimates with associated variance statistics. Abundance estimates for use in this context have been based on sighting surveys. Large-scale synoptic sighting surveys to estimate the abundance of minke whales in the Northeast Atlantic were conducted in 1988, 1989 and 1995 (Schweder et al. 1997). Based on the experiences from the 1995 survey in which 11 vessels and 140 people were involved, it was chosen for the following years to cover the northeast Atlantic by small-scale annual surveys over six-year periods (Øien & Schweder 1996). One obvious problem associated with this approach is how to account for the additional variance introduced in multiyear sighting surveys relative to a synoptic survey (Skaug et al. 2004), a feature which they share in common with other surveys discussed in the Scientific Committee in recent years. The arguments for a multiyear sighting survey were that it would be more feasible to achieve common standards and better quality of data collection through more training of the observers and the scientists. Additional benefits were that the logistics would be simpler and costs could be shared over more years. Our experience from the six-year survey periods 1996-2001and 2002-2007 is that the program has been quite successful (Skaug et al. 2004, Bøthun et al. 2009) in the mentioned respects. Norway therefore decided to continue with a new series of sighting surveys in the northeast Atlantic over the period 2008-2013 (Øien and Bøthun 2008) with the aim of presenting a new estimate of minke whale abundance in 2014. The survey conducted in the summer 2008 is the first one in this survey series.

AREAS SURVEYED IN 2008

When the plans were presented in 2008 (Øien and Bøthun 2008), we suggested to preferably cover one *Small Management Area* during one year's survey as a rule. In 2008 we therefore started the survey cycle by covering the Svalbard area, *Small Management Area* ES. This area was last covered in 2003.

In 2008 we made a change to the block (stratum) definitions we have been using previously, as the number of blocks had increased to a number which made it difficult to distribute survey effort in an efficient way. Changes in the *Small Management Area* structure in 2003 (IWC 2004) also led to modifications which were motivated of the wish to keep some consistency throughout a survey period and make comparisons with previous surveys easier. The new implemented block structure, comprising of four strata ES1-ES4, is shown in Figure 1.

CRUISE SUMMARIES

The two vessels which participated in the 2008 survey were the vessels *Thorsteinson (THO)* and *Eros (ERO).* The survey was conducted over the period 30 June to 3 August (*THO*) and 30 June to 25 July 2008 (*ERO*). On board the vessels, G. Bøthun, P. Ensor (New Zealand), K.A. Fagerheim, L. Kleivane and N. Øien acted as team leaders.

The 2008 total survey area was divided into four survey blocks (Figure 1). *THO* was allocated for surveying the blocks ES2 and ES3, while *ERO* was allocated to the blocks ES1 and ES4 as the main working areas.

THO started its survey activities in the block ES3 where the first transect was covered during 2 to 7 July. The survey activity was then continued in the block ES2 by covering the primary transect there over the period 8 to 15 July. The secondary transect in ES2 was covered over the period 18-21 July. From 22-26 July parts of the secondary transect in block ES1 was

covered. Time was then allocated to look for possibilities of putting a VHF tag on a minke whale for collecting dive time data, but without success. In the area around Bear Island there were many humpback whales and when conditions were not appropriate for surveying, time was spent on collecting photo IDs and biopsy samples from these animals.

ERO headed for its first transect in the block ES1, and covered most of the primary transect over the period 30 June to 8 July. Part of the block, its north-eastern corner, could not be covered due to ice in that area. The primary transect in ES4 was covered during 11-16 July, but only 60% of it could be accessed due to ice conditions. Parts of the secondary transect in ES4 was covered 18-20 July. To increase the coverage in block ES3, *ERO* covered parts of the secondary transect in the block 21-23 July.

The two vessels were able to survey about 2,757 nautical miles, which was somewhat higher than we had anticipated at the planning stage based on earlier experience of weather and conditions. We were able to survey all the four blocks with a reasonable coverage, with the exception of the south-western corner of block ES4. This was due to bad weather conditions and time constraints when the vessel was in that area. Realised primary search effort in the four blocks surveyed in 2008 is shown in Figure 1.

A summary of the number of groups of whales sighted during the 2008 survey when on primary search effort is given in Table 1. Distributions of primary sightings of minke whales, fin whales, humpback whales, Northern bottlenose whales, blue whales, sperm whales and dolphin spp. are shown in Figures 2-6.

Distance and angle estimation training and tests were conducted on *THO* on 15 July and 2 August 2008. On *ERO* experimental tests were conducted on 2 and 8 July 2008.

Biopsies were collected from 11 humpback whales and 12 fin whales, altogether 33 individual whales. In addition, fluke photos from about 54 humpback whales were collected, mostly from the area around Bear Island, and photo ID from 8 fin whales, 10 minke whales and 3 blue whales.

SURVEY DESIGN, SIGHTING PROCEDURES AND DATA COLLECTION

The survey procedures followed were the same as in NILS-95 (Øien 1995, Schweder et al. 1997, Skaug et al. 2004). The equipment was basically the same as was used in the NILS-95 survey, but some modifications have been made through the period to the software to make relevant data recording of especially weather covariates easier. Digital recording of speech is made directly to disk. This system has proved very useful and easy for transcription and checking. Double platform effort is used exclusively, and the observers are organised into teams of two persons. This has been consistent in all our surveys since 1997.

An integral part of the survey activity is collection of dive time data for minke whales by use of VHF tagging or eventual other appropriate methods. During a separate survey in 2008 (Øien et al. 2009) one new dive time series was collected.

On an opportunistic basis, biopsy sampling and photo identification are conducted during the sighting surveys.

FUTURE SURVEY ACTIVITY

The survey in the Svalbard area in 2008 was the first one in the planned six-year cycle 2008-2013 of survey activity to provide a new minke whale abundance estimate in a timely manner (Øien & Bøthun 2008). An estimate of minke whale abundance based on the previous series of partial surveys 2002-2007 was presented last year to the IWC/SC meeting (Bøthun et al. 2008). In 2009, the plan is to survey the *Small Management Area* EN – the North Sea area.

ACKNOWLEDGEMENTS

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Table 1

Number of groups of whales seen from the upper platform during primary search, and realised primary search effort (nautical miles) by survey stratum, during the 2008 survey.

Species	**ES1**	**ES2**	**ES3**	**ES4**	**Total**
Minke whale	41	10	60	17	**128**
Fin whale	17	56	13	3	**89**
Blue whale	1	1	-	-	**2**
Humpback whale	40	3	2	-	**45**
Dolphins, unsp.	21	50	8	1	**80**
White-beaked dolphin	39	26	12	2	**79**
Northern bottlenose whale	-	1	7	1	**9**
Sperm whale	-	1	1	-	**2**
Large whale	13	23	5	-	**41**
Total, groups	172	171	107	23	**473**
Realised primary effort (nmi.)	720	582	750	705	**2757**

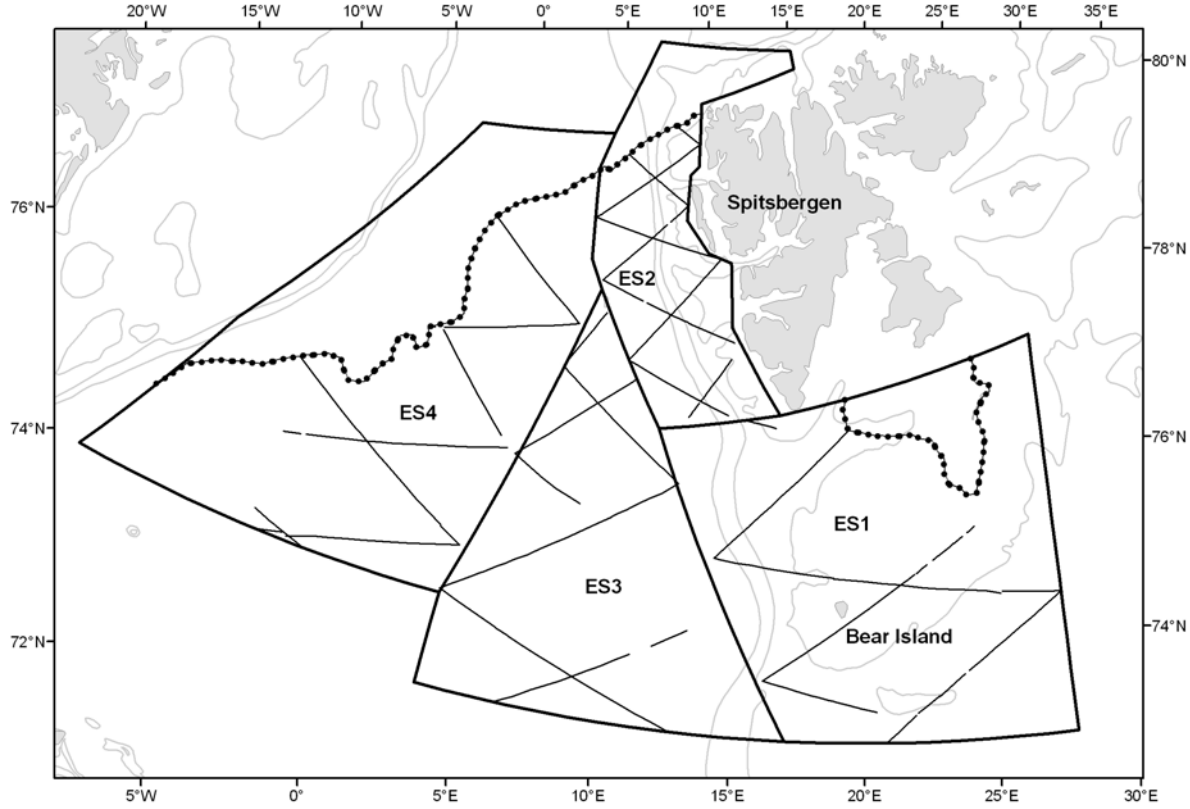

Figure 1. The ES *Small Management Area* with the block structure, ES1-ES4, adopted for the survey. Realised transects with primary search effort have been added. The dotted lines indicate the ice edge.

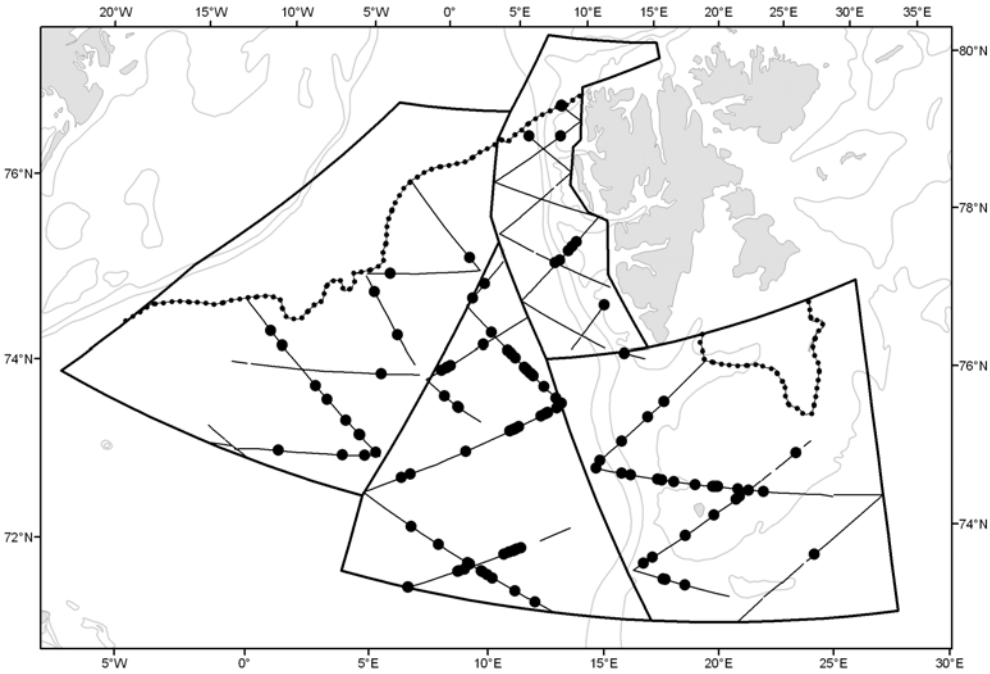

Figure 2. Primary sightings of minke whales.

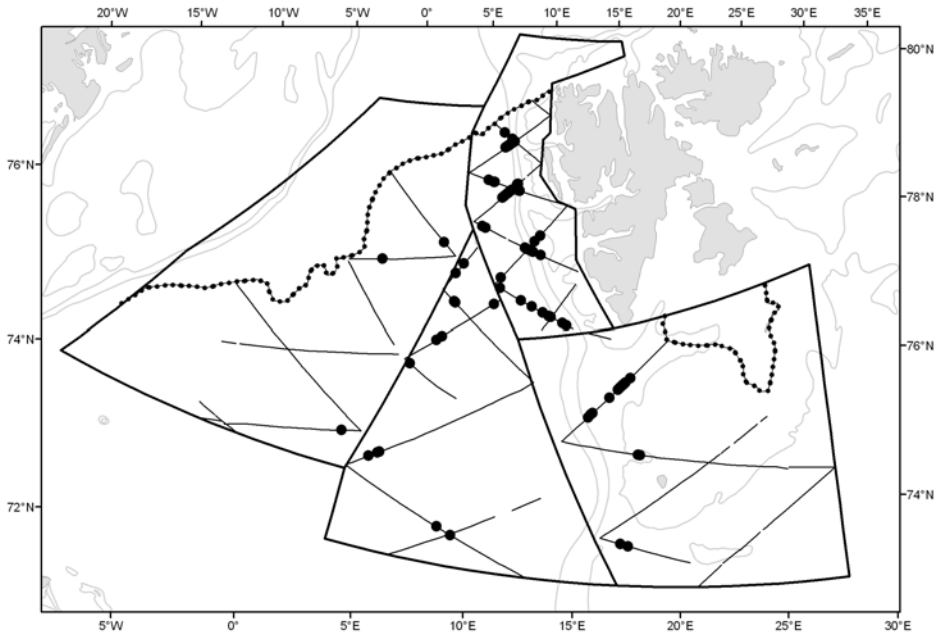

Figure 3. Primary sightings of fin whales.

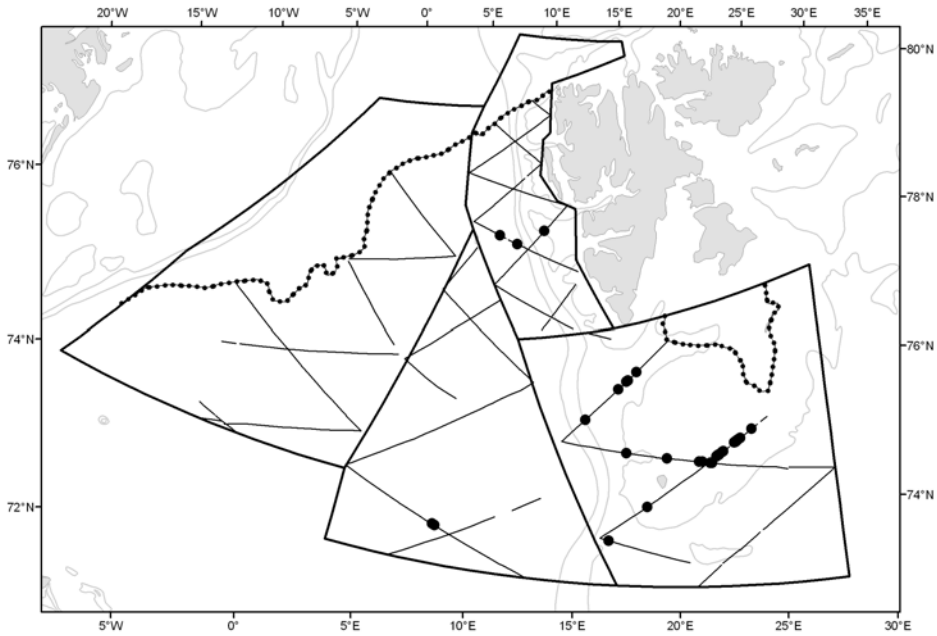

Figure 4. Primary sightings of humpback whales.

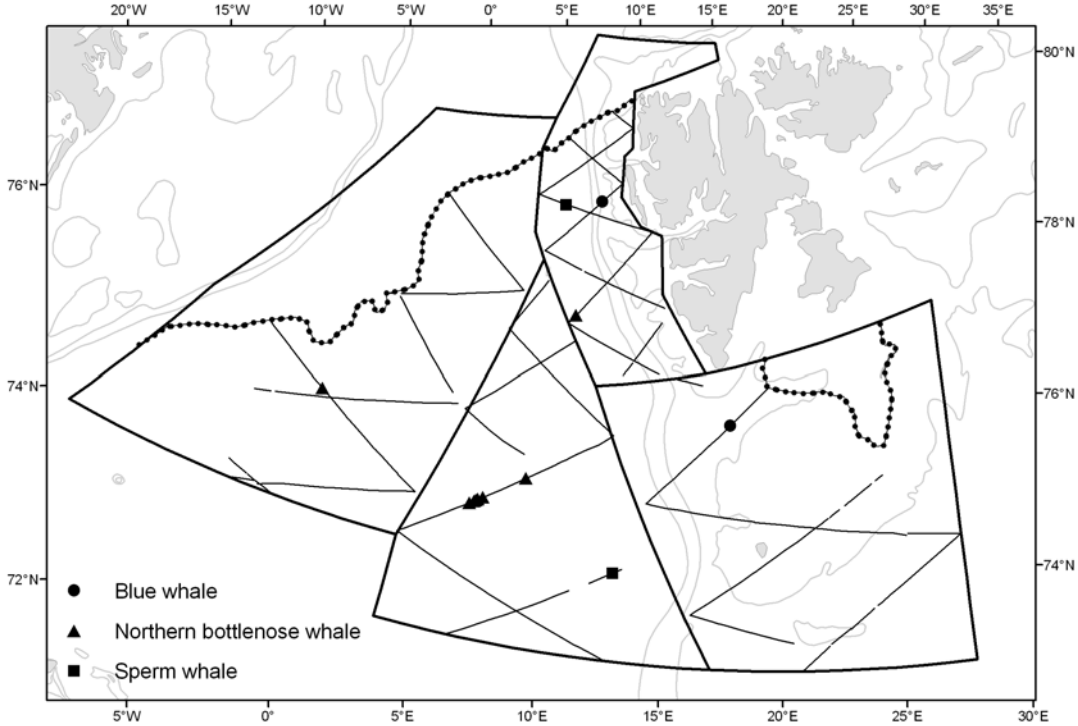

Figure 5. Primary sightings of blue whales, Northern bottlenose whales and sperm whales.

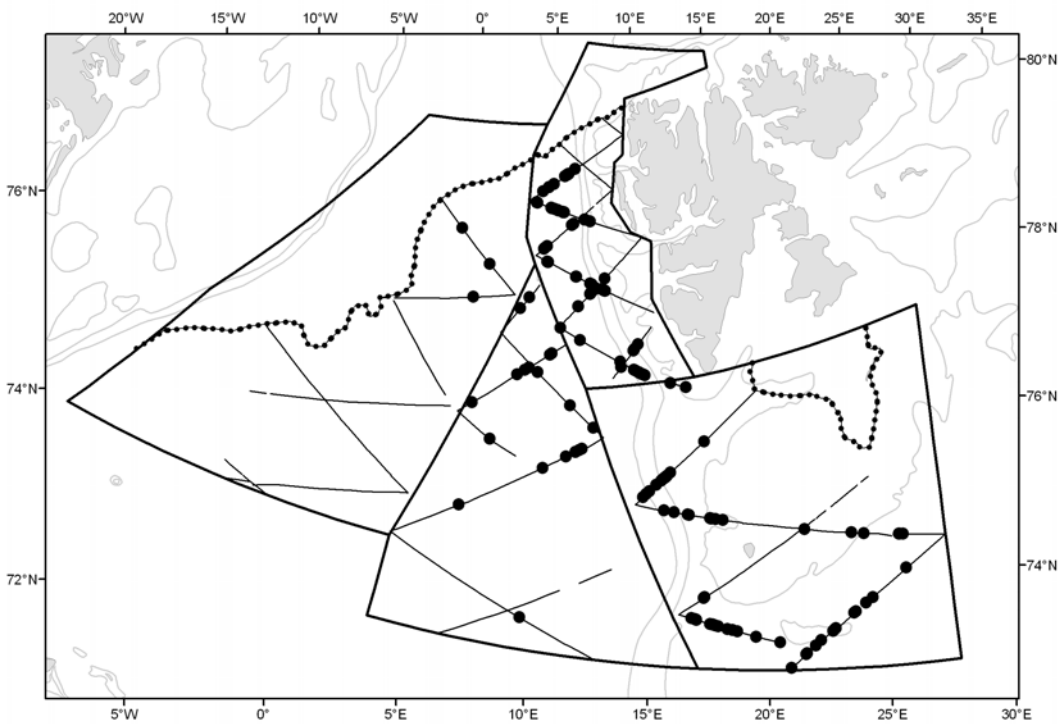

Figure 6. Primary sightings of *Lagenorhynchus* spp.