Research plan of the sighting survey for common minke whales in the Okhotsk Sea in summer 2014

TOSHIYA KISHIRO, YU KANAJI, HIROTO MURASE, HIDEYOSHI YOSHIDA, SHINGO MINAMIKAWA AND TOMIO MIYASHITA

National Research Institute of Far Seas Fisheries, 2-12-4 Fukuura, Yokohama, Kanagawa, 236-8648, Japan

ABSTRACT

We propose a plan to conduct a sighting survey for common minke whales in the Okhotsk Sea including the Russian EEZ in 2014 summer season assuming the permission from the Government of the Russian Federation to enter these waters are provided. Primary objective of the survey is obtaining a recent abundance estimate of common minke whales in the sub-area 11 and 12. A systematic line transect survey will be conducted following the guideline provided by the IWC for the purpose of RMP. As a secondary objective, biopsy sampling and satellite tagging for common minke whales will be carried out if permissions from the Government of the Russian Federation are obtained. Those sampling and tagging efforts are important to obtain the information on mixing rate of J and O stocks, and distributional range of J stock in the Okhotsk Sea. One or two dedicated sighting survey vessels will be offered in the survey. Each vessel will conduct about 40 days cruise in July to September, though detailed plan will be changed depending on the logistics. On board Russian observers or co-researchers will be welcomed. The Permission from the Government of the Russian Federation is critically needed for execution of this research plan. Endorsement and recommendation from the IWC is critically important to obtain survey permits from the Government of the Russian Federation.

BACKGROUND

The recent abundance of common minke whale in the Okhotsk Sea (sub-area 11 and 12) was estimated to be 13,067 (CV=0.287) for sub-area 12NE in 2003, 3,401(CV=0.409) for sub-area 12SW in 2003, and 377 (CV=0.389) for sub-area 11 in 2007, based on the past Japanese dedicated sighting surveys (Miyashita, 2004, 2008), though areal coverage was low (20.2% for sub-area 11, and 46.0% for sub-area 12NE). These estimates will be used in the implementation assessment of the North Pacific common minke whales, but six to ten years have already passed since those estimates were obtained. The recent information on the abundance levels in those waters will be needed in the future implementation assessment. For that reason, we propose a plan to conduct the sighting survey for abundance estimation in the Okhotsk Sea in 2014 summer season.

In the process of the implementation assessment of the North Pacific common minke whales, the stock structure hypotheses is one of the most important and complicated issue. The information on mixing rate of the J and O stocks and distributional range of the J stock in the Okhotsk Sea are required in considering the stock structures of the whales (IWC, 2009). Under these situations, we conducted biopsy sampling surveys in the Okhotsk Sea including the Russian EEZ in 2009, 2010 and 2011 with the permission from the Government of the Russian Federation (Yoshida, *et. al*., 2010a, 2011, Minamikawa, 2012). In 2012, we planned a satellite tagging survey for common minke whales in the Sea of Japan including the Russian waters. However, it was unfortunate that the Government of the Russian Federation did not issue permit for this survey in their waters. As the results, the survey was carried out in the Japanese domestic waters (Kishiro, *et. al*., 2013).

The sighting surveys as well as the biopsy sampling surveys in the Okhotsk Sea were carried out with the permission from the Government of the Russian Federation, but permitted area has been gradually reduced from 1989 to 2011. In 2011, vessel could not enter the waters north of 57°N, and east of 152°E. Furthermore, vessel could not conduct the surveys in the waters south of 49°N, and west of 149°E in 2011, due to the territorial issues. Sighting information with enough area coverage is important and needed to obtain the adequate abundance estimates. In addition, information on the genetic and individual movements is useful and efficient to examine the stock structure. These data could be contributed to the future assessment of the North Pacific common minke whales. We hope to conduct the following survey by obtaining the permission from the Government of the Russian Federation with endorsement and recommendation by the IWC scientific committee.

RESEARCH PLAN

Research vessel

One or two research vessels (700 to 900GT) will be used. That vessel is equipped with a top barrel, and chartered by the Fisheries Research Agency or belongs to the Fisheries Research Agency.

Scientists on board
At least two researchers will be onboard from the National Research Institute of Far Seas Fisheries (NRIFSF). Russian observers or co-researchers will be welcomed. Tomio Miyashita (NRIFSF) will be the responsible person for the oversight of this cruise.

Schedule
Tentative schedule is follows. The survey will be conducted in summer season, but detailed schedule will be changed depending on the logistics. In addition, there is a possibility to arrive in the Russian port for refuelling, but it will be depend on the logistics of the vessel, and permission from the Government of the Russian Federation.

28 July	leave the home port in Japan, for the first half of the cruise
16 August	arrive in Abashiri, Hokkaido (or the Russian port), for refuelling
18 August	leave Abashiri, Hokkaido (or the Russian port), for the last half of the cruise
5 September	arrive in the home port in Japan

Research area and track line
Research area is set in the Okhotsk Sea including the Russian EEZ, though some part of the area is excluded following the Russian permission (e.g., the Russian territorial waters). The pre-determined track line will be determined in the research area. Fig. 1 shows the ideal track lines and research blocks in the Okhotsk Sea to cover the whole area. Blocks and track lines will be re-constructed before the cruise in the next year, following the usual line transect manners such as the software, DISTANCE (Thomas et al., 2010), and the permission from the Government of the Russian Federation to enter those waters.

Sighting activity
Sighting survey will be conducted following the guideline provided by the IWC for the purpose of RMP (IWC, 2012). The normal closing mode survey is carried out, in which closing is made for all cetacean species encountered on the track lines. Two observers on the top barrel of the vessel conduct searching by naked eyes. Species identification is conducted using binocular. At least one researcher on the upper-bridge also searches for cetaceans and record sighting information. The survey is to be conducted from 6:00 a.m. to 6:00 p.m. basically when the weather conditions are suitable for observations: visibility better than 1.5 n.miles and the wind speed less than 7.5m/s. The vessel speed is planned to be 11.5 knots with slight adjustment to avoid vibration of vessel.

Experiments
Biopsy sampling

If the permission from the Government of the Russian Federation for sampling is provided, vessel will try skin sampling from all common minke whales sighted during the survey, using Larsen gun. Collected skin samples will be unloaded at Russian port when vessel arrives for refuelling as mentioned above, or treated for onboard genetic stock identification analysis within the Russian waters, following the protocol in Yoshida, *et.al*. (2010b). The samples will not be retained on board until the vessel leave the Russian waters so that the samples will not be brought out of there, to avoid confliction with Russian domestic laws and regulations related to CITES.

Satellite tagging

If the permission from the Government of the Russian Federation for tagging is provided, all common minke whales encountered will be targeted for tagging. The Wildlife Computers Spot-5 implantable tags are used as the Argos transmitter. A handy air gun is used for the attachment of the tags. The time for chasing (for tag attachment) is limited to a maximum of 120 minutes against one animal.

Other experiments

Angle and distance training and experiments will be conducted during the survey. When gray, humpback, North pacific right, and killer whales are encountered, photographs are taken for individual identification. Some oceanographic observations such as the CTD or XCTD will be conducted, if possible.

SUBMISSION OF THE REVISED RESEARCH PLAN

Along the situation of the permission issuance from the Government of the Russian Federation, we will submit the revised plan to the next 2014 IWC scientific committee meeting.

REFERENCES

International whaling commission, 2009. Report of the scientific committee. J. Cetacean Res. Manage. 11(SUPPL). 2009:1-74

International whaling commission, 2012. Requirement and guidelines for conducting surveys and analysing data within revised management scheme. J. Cetacean Res. Manage. 13(SUPPL) 509-517.

Kishiro, T., Murase,H., Minamikawa, S. and Miyashita, T. 2013. Sightings and trials for satellite tracking of common minke whale in the Sea of Japan in autumn 2012. Paper SC/65a/NPM ? presented to the IWC Scientific Committee, June 2013 (unpublished). 7pp.

Minamikawa, S., Kishiro, T. and Miyashita, T. 2012. Cruise report of the sighting and biopsy sampling survey for common minke whales in the Okhotsk Sea, spring 2011. Paper SC/64/O10 presented to the IWC Scientific Committee, June 2012 (unpublished). 7pp.

Miyashita, T. 2004. Cruise report of the common minke whale sighting surveys in the Sea of Okhotsk in 2003. Paper SC/56/RMP1 presented to the IWC Scientific Committee, May 2004 (unpublished). 10pp.

Miyashita, T. 2008. Cruise report of the IO sighting survey in the Sea of Japan and the Sea of Okhotsk off northern Hokkaido in 2007. Paper SC/60/NPM4 presented to the IWC Scientific Committee, May 2008 (unpublished). 7pp.

Thomas, L., Buckland, S.T., Rexstad, E.A., Laake, J.L., Strindberg, S., Hedley, S.L., Bishop, J.R., Marques, T.A. and Burnham, K.P. 2010. Distance software: design and analysis of distance sampling surveys for estimating population size. J. Appl. Ecol., 47: 5-14.

Yoshida, H., Kanaji, Y., Miyashita, T., Uoya, T. and Furukawa, H. 2010a. Cruise report of the common minke whale biopsy sampling survey in the Okhotsk Sea, summer 2009. Paper SC/62/NPM22 submitted to the IWC Scientific Committee, May 2009 (unpublished). 9pp.

Yoshida, H., Nozawa, A., Kanda, N., Kishiro, T. and Miyashita, T. 2010b. Results of onboard genetic analysis of common minke whale biopsy samples collected in the Okhotsk Sea, summer 2010. Document SC/D10/NPM9 submitted to the first intersessional workshop for North Pacific minke whale implementation review, Busan, Korea, December 2010. 12pp.

Yoshida, H., Kishiro, T., Kanda, N. and Miyashita, T. 2012. Cruise report of the sighting and biopsy sampling survey in the Okhotsk Sea, summer 2010, including individual stock identification of common minke whales. Paper SC/63/NPM9 submitted to the IWC Scientific Committee, June 2012 (unpublished). 10pp.

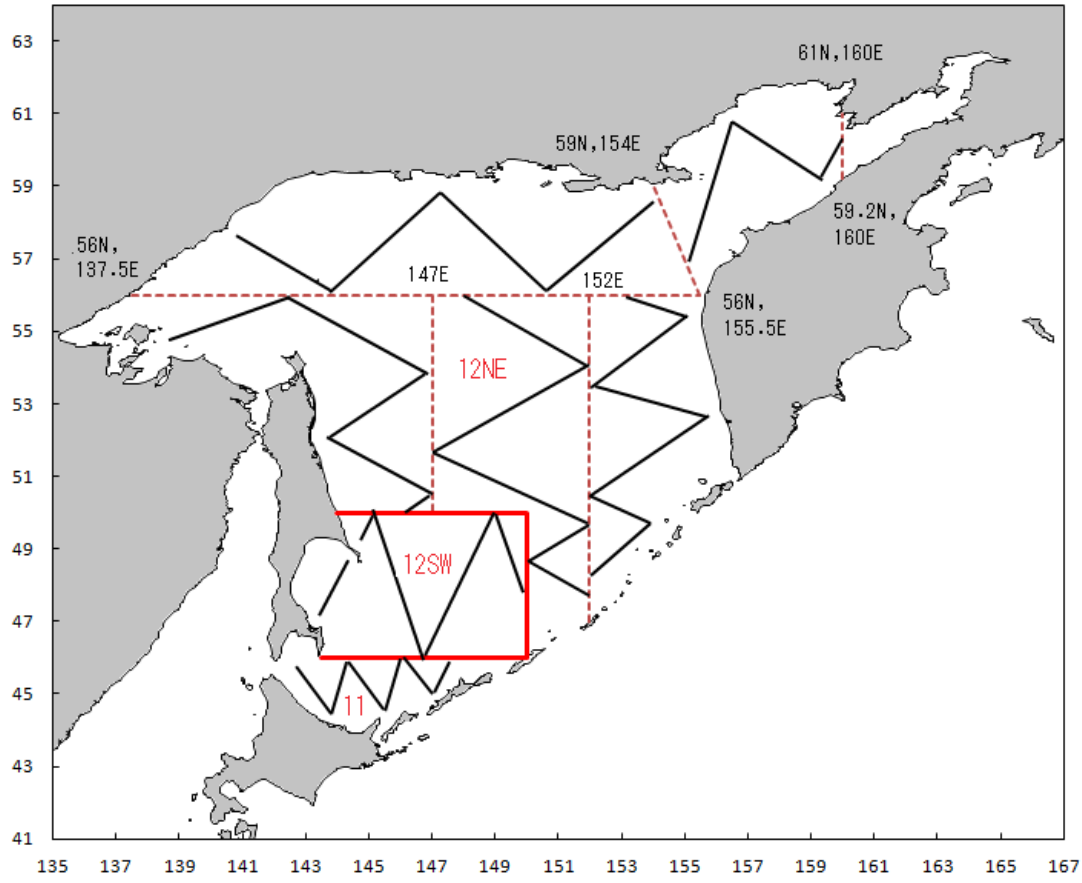

Fig. 1. The ideal track lines (black line) and research blocks (dotted line) in the Okhotsk Sea to cover the whole area in 2014 summer season. Red line indicates the boundary of the sub-area for the IWC implementation assessment of common minke whales. Blocks and track lines will be re-constructed before the cruise in the next year, following the usual line transect manners such as the software, DISTANCE, and the permission from the Government of the Russian Federation to enter the waters.