CRUISE REPORT OF THE IO SIGHTING SURVEY IN THE NORTHERN SEA OF JAPAN IN 2006

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ABSTRACT

From 18 May to 28 June in 2006, the IO passing mode sighting survey using a research vessel *Kaiko-maru* was conducted in the northern Sea of Japan to get the information on distribution and abundance of common minke whales. The permission to enter the Russian 200 n.miles EEZ from the Russian Federation was issued and the survey was firstly conducted in the continental side of the Sea. During the research distance of 1,421.6 n.miles, a total of 51 schools (55 animals) of common minke whales were primarily sighted and the IO sighting data was obtained. This suggests that there is enormous biomass of common minke whales in the continental side of the Sea. The vessel also observed fin whales and humpback whales in the research area.

KEY WORD: COMMON MINKE WHALE, SIGHTING SURVEY, NORTH PACIFIC

INTRODUCTION

For stock assessment of the Sea of Japan-Yellow Sea-East China Sea stock (J-stock) of common minke whales, a series of sighting surveys has been conducted in the related waters by Japan and Korea (An et al., 2006; Iwasaki *et al*., 1995, 2000; Miyashita and Yoshida, 2003; Miyashita, 2004, 2005; 2006; Kim et al., 1999, 2000, 2001, 2002, 2003, 2004, 2005; Sohn et al. 2001), there still remains large un-surveyed area in the continental side of the Sea of Japan where mainly is the Russian 200 n.miles EEZ. Japan has tried to get permission to survey in the EEZ, and the Russian Federation issued it for the 2006 season firstly. Then the IO passing mode sighting survey was firstly conducted in the Russian EEZ in the northern Sea of Japan. This report is summary of the cruise.

SURVEY DESIGN AND METHODS

Plan of the research area, block and transect line has been reported to the IWC/SC in 2005 and discussed in the SC (Miyashita and Kato, 2005). The research area was determined as north of 40°N and east of 133°E (Fig. 2). Outer boundary of blocks were set based on the EEZ line, then there were some blocks in the Russian EEZ and others in the Japanese EEZ with the intention of minimizing the loss of time to pass the Russian check points when entering and leaving the EEZ. Cruise tracks were designed to cover each block uniformly using zigzag form (Fig 3). Pre-determined track line was 2,028.1 n.miles in the Russian EEZ blocks and 814.8 n.miles in the Japanese side.

The research vessel, *Kaiko-maru*, has a top barrel of which height from the sea level was 20m and an IO platform of 15m (Fig.1). Two top mans on each platform observed by naked eyes, and for the observation and distance estimation they used binocular. On the upper-bridge, two scientists

observed and recorded the sighting information including the identification of duplicate sightings. Voice recording system which was developed for the IO passing mode survey in the North Pacific was used through the cruise. The voice from four observers was monitored by separated four speakers at the upper bride where researchers watched and confirmed the duplicate sightings. If there is vague situation, it can be checked by playing the voice using the PC after the event. Therefore the identification of duplicate sighting was based on the reliable information.

The survey was conducted during the good weather condition in principle when the visibility was two n.miles or better and the wind force was four or smaller in Beaufort scale, but when the sea is calm but the visibility of one n.miles or better, the survey was also conducted. The daily survey started at 06:00 a.m. or 30 minutes after sunrise and finished at 30 minutes before the sunset, but the daily research duration was set as shorter than 12 hours.

CRUISE SUMMARY

Scientists and observer onboard

Following scientists were onboard:

Shigeru Noji (Chief scientist, TS/NRIFSF) and Daiki Inamori (TS/NRIFSF),

where TS/NRIFSS is temporary staff of National Research Institute of Far Seas Fisheries. Former scientist has a long history of researcher onboard sighting survey vessel in the North Pacific and he participated in the IO sighting surveys in the Sea of Japan in 2004 and 2005.

As the Russian observer, Dr. Sergei Blokhin (TINRO-centre) was onboard through the whole survey period.

Oversight

Miyashita was nominated to be engaged in oversight for the cruise in the 58th IWC/SC. Planning meeting was held before the cruise and he had all scientists and crew fully understood the purpose, the method and the task of the survey. During the survey, he got the progress report everyday from the chief scientist about the results of sightings, the allocation of sighting effort, the environmental information and the general information. Then he gave the instruction on the activities for the next day and controlled the progress of the survey. So the survey was fully under oversight of Miyashita.

Narrative

18 May : The vessel left Shiogama, Miyagi Prefecture.

19 May : Training of distance and angle estimation.

20 May : The vessel entered in the Russian EEZ.

21 May : The vessel passed the Russian check point (E-4) before daylight and arrived at WP1 at noon and started the survey in the ROS block.

22-25 May : Sometimes gas prevented from searching.

26 May : The vessel finished the survey in the ROS block and entered in the RCS block at WP11. The track line between WP9 and WP10 (13.4 n.miles) was cancelled because it was identified in the delicate area near the boundary between the Russian and the north Korean EEZ.

27-29 May : Almost good weather continued.

30 May : The vessel finished the RCS block.

31 May : The vessel moved to the RCM block. The Russian inspector vessel searched the research vessel.

1-12 June : Sometimes a strong wind prevented from searching, but the weather was generally good.

13 June : The vessel finished the RCM block at WP31 and moved to the northern most way point (WP43) in the RCN block.

15 June : The vessel arrived at WP43 and began survey to the south in the RCN block.

16-17 June : Almost good weather was continued.

20 June : The vessel finished the RCN block at WP32 and finished the survey in the Russian EEZ.

21 June : The vessel passed the Russian check point (E-5) and moved to the JPN block.

22-24 June : Because of strong wind, the survey was stopped.

25 June : Distance and angle estimation experiment was conducted. The vessel finished the survey in the JPN block and started returning to Shiogama.

28 June: The vessel arrived at Shiogama and finished all research activities.

The transect traversed with sighting effort is shown in Fig. 4.

Sighting results

Research distance in the research area by IO passing mode was 1,421.6 n.miles in the Russian EEZ which was 70.0% of the pre-determined track line. In the Japanese block, 174.2 n.miles which was 20.7%. During the survey, three large cetaceans, common minke whales, fin whales and humpback whales were found (Table 1). The number of sightings of common minke whales in the research area was 51 schools with 55 animals as primary sighting, and six schools with six animals as secondary. They are distributed in wide area in the Russian EEZ, but many animals were found between the continent and the Sakhalin (Fig. 5). The past sighting surveys in the Japanese side of the Sea and the sea water structure suggested the presence of common minke whales in the continental side (Miyashita, 2005), and the present survey confirmed the enormous biomass of the species there. Relationship between sighing positions and topographical conditions, the species are distributed in slightly higher density in the waters shallower than 1,000m, but they were also found deeper than 3,000m (Fig. 6).

The sighting positions of fin and humpback whale were shown in Fig. 7 and 8, respectively. The latter animal was individually identified by the photograph of the ventral side of the fluke.

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Table 1. Sightings by *Kaiko-maru* in the 2006 sighting survey in the northern Sea of Japan.

Species	Transit				Research area				Total			
	Primary		Secondary		Primary		Secondary		Primary		Secondary	
	Sch.	Ani.	Sch.	Ani.	Sch.	Ani.	Sch.	Ani.	Sch.	Ani.	Sch.	Ani.
Common minke whale	2	2			51	55	6	6	53	57	6	6
Fin whale					13	18	1	1	13	18	1	1
Humpback whale					1	2	1	1	1	2	1	1

Fig, 1. Research vessel, *Kaiko-maru*.

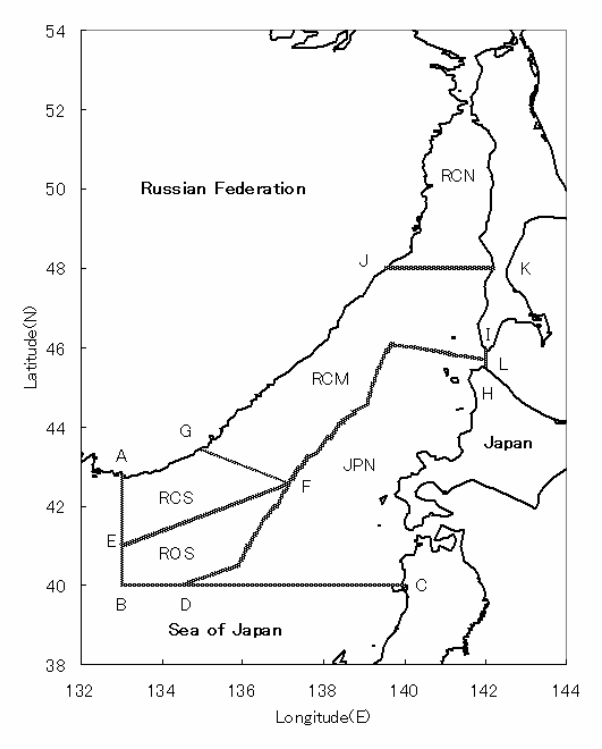

Fig. 2. Research area and blocks.

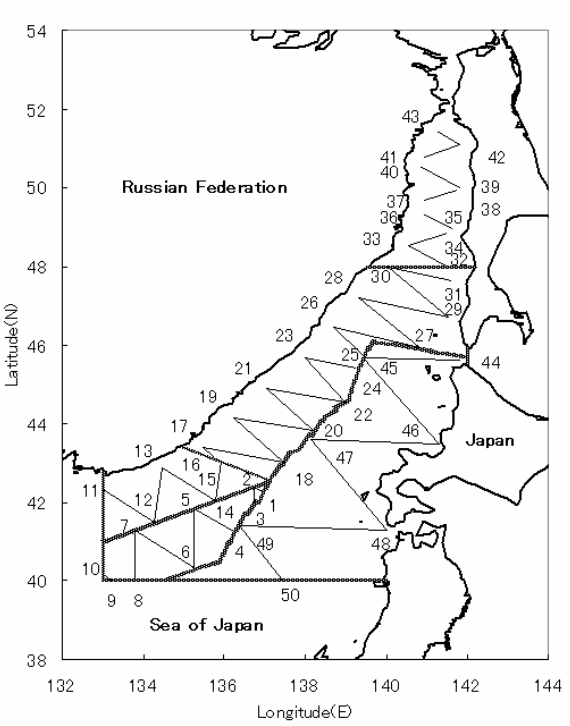

Fig. 3. Pre-determined track line and way points.

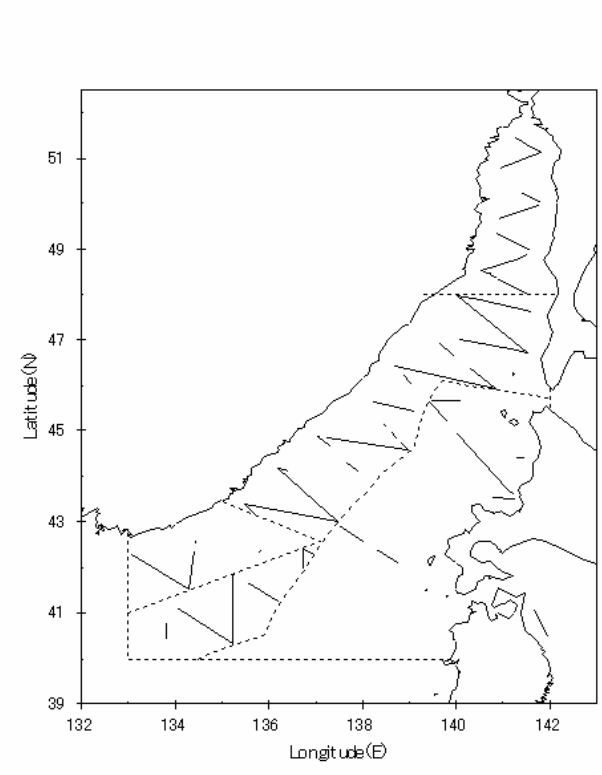

Fig. 4. Cruise track traversed with sighting effort.

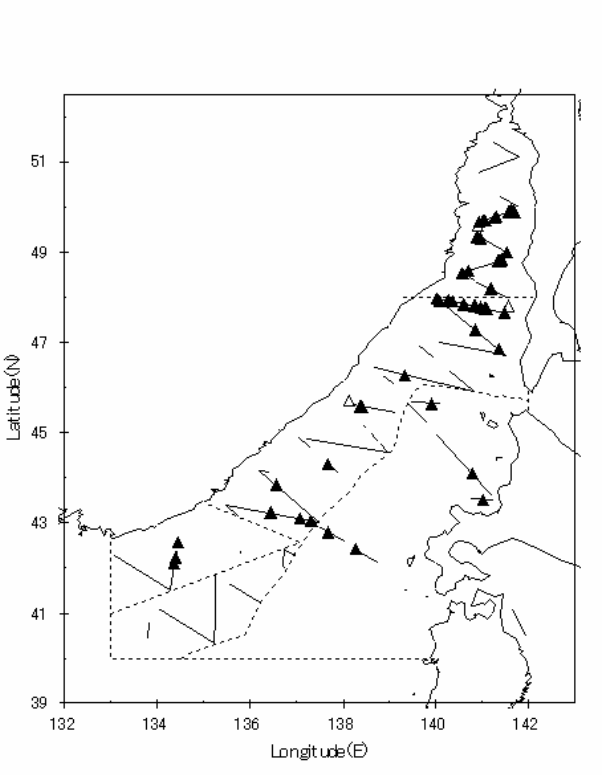

Fig. 5. Sighting positions of common minke whales. Black triangle : primary sightings, white triangle : secondary sightings.

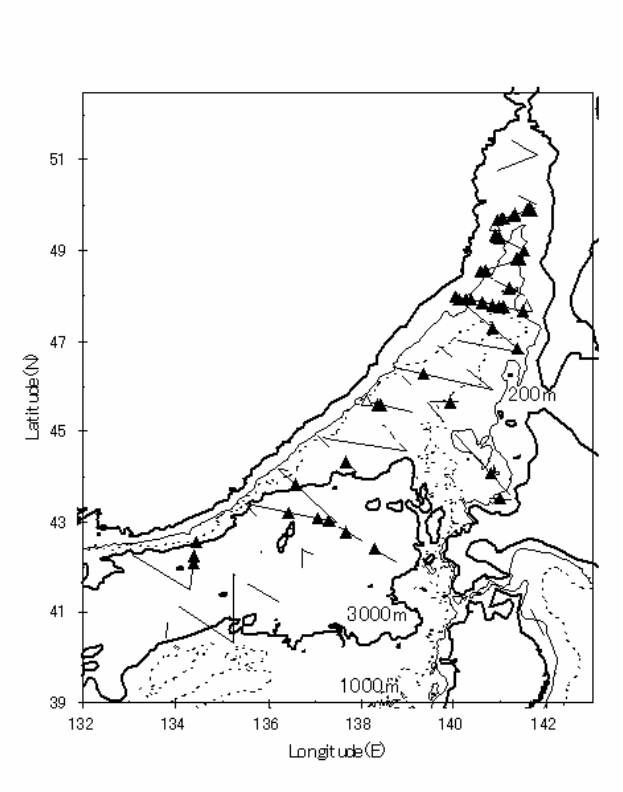

Fig. 6. Sighting positions of common minke whales and topographical structure.

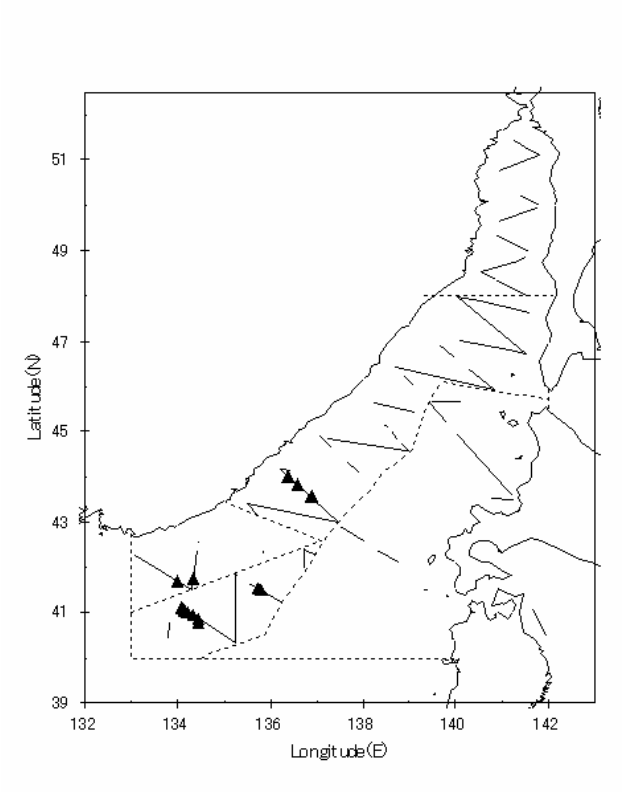

Fig. 7. Sighting positions of fin whales.

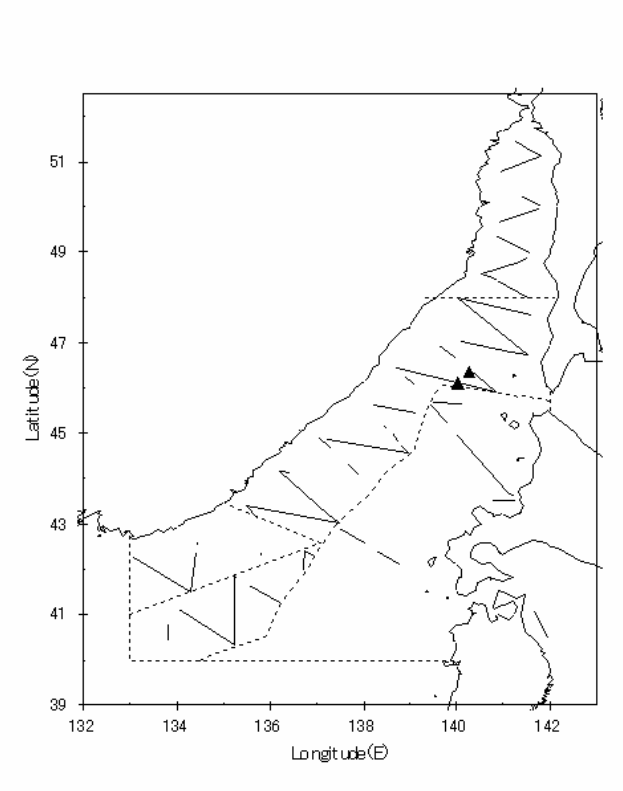

Fig. 8. Sighting positions of humpback whales.