

# Research plan for the common minke whale sighting surveys in sub-areas 8 and 9 in 2011

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## ABSTRACT

Three systematic vessel-based sighting surveys are planned in the North Pacific in 2011. The main objective is to examine the distribution and estimate the abundance of common minke and sei whales. These surveys will be conducted in the western-North Pacific. The first survey will be conducted using the research vessel *Yushin-maru* between 28 April and 6 June and will involve the area comprised between 43°N-51°N and 157°E-170°E (sub-area 9). The second survey will be conducted by the research vessel *Yushin-maru No.2* between 28 April and 6 June in the area comprised between 35°N-43°N and 157°E-170°E (sub-area 9). The third survey will be conducted by the research vessel *Yushin-maru No.3* between 13 May and 6 June in the area comprised between 35°N-45°N and 150°E-157°E (sub-area 8). For the objective of abundance estimation routine distance and angle estimation experiments will be conducted. Biopsy skin samples of blue, fin, humpback and right whales will be collected on an opportunistic basis. Photo-identification experiments on blue, right and humpback whales will be also conducted opportunistically. The report of the sighting surveys will be submitted to the 2012 IWC SC meeting.

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

## BACKGROUND

In the Western North Pacific, dedicated cetacean sighting surveys based on the survey procedures of “the International Whaling Commission / Southern Ocean Whale and Ecosystem Research (IWC/SOWER)” have been conducted since the 1995 season as a part of the Japanese Whale Research Program Under special Permit in the Western North Pacific (JARPN). Distribution patterns of large whales such as blue, fin, sei, Bryde’s, minke, humpback, right and sperm whales had been analyzed and abundance estimates of minke, sei and Bryde’s whales were also calculated and reported to the IWC/SC (IWC, 2001, 2009). The National Research Institute of Far Seas Fisheries (NRIFSF) also has been conducting dedicated sighting survey for cetaceans in the North Pacific since the 1980s (Buckland et al., 1992, Miyashita and Kato, 2004; 2005).

In 2011, the Government of Japan plans to continue the surveys in the North Pacific. The 2011 surveys will be focused on the collection of line transect data to estimate abundance and biopsy / photo-identification data, which would make a valuable contribution to the work of the Scientific Committee on the management and conservation of populations of large whales in the North Pacific (IWC, 2009). The Institute of Cetacean Research will conduct the following systematic sighting survey plan based on the IWC/SOWER survey procedures using two dedicated sighting survey vessels in the research area.

## RESEARCH PLAN

### Research vessels

*Yushin-Maru* (YS1), *Yushin-Maru No.2* (YS2), *Yushin-Maru No.3* (YS3) will be engaged as a dedicated sighting survey vessel (SV). They are equipped with a top barrel platform (TOP) and upper bridge. The ICR research data collecting system is set on the vessel. Specifications of the vessels are shown in Table 1.

### Research schedule

The first and second surveys (YS1 and YS2 surveys):

28 April,    Leave Shimonoseki Port, Yamaguchi Prefecture  
6th June,    Arrive at Shimonoseki Port, Yamaguchi Prefecture

The third survey (YS3 survey):

13 May,    Leave Shimonoseki Port, Yamaguchi Prefecture  
6th June,    Arrive at Shimonoseki Port, Yamaguchi Prefecture

### Researchers on board

Researchers on board who have considerable line transect whale sighting survey experience in the North Pacific, Antarctic as well as experience conducting biopsy and photo-id experiments through the IWC/IDCR-SOWER and JARPN II Programs will be onboard. Koji Matsuoka (Institute of Cetacean Research) will be the responsible person for the oversight of these surveys as same as 2010 surveys.

Shinya Kawabe (YS1, entire of the survey)  
Futoshi Yamaguchi (YS2, entire of the survey)  
Masaomi Tsunekawa (YS3, entire of the survey)

### Research area and track line design

The research area for the first survey (YS1) is in the area of 43°N-51°N and 157°E-170°E. The second survey (YS2) is in the area of 35°N-43°N and 157°E-170° E. The third survey is in the area of 35°N-45°N and 150°E-157° E (Figures 1, 2 and 3).

The survey blocks and pre-determined track lines are shown in Figures 1, 2 and 3. The block boundaries are based on the latitudinal / longitudinal lines. Track lines are decided based on the origin longitude line which selected at random, and the number of the line (width in the longitude) is decided by the research schedule. A total research distance for each research area will be 2,384 n.miles, 2,943 and 1,455 n.miles, respectively.

### Primary searching activity

Closing and Passing modes surveys follow the protocol endorsed for the IWC/SOWER cruise (IWC, 2008). There are two primary observers in the both top barrel platform (TOP) and the upper bridge (Captain and Helmsman), respectively. On the TOP, two observers conduct searching for cetaceans by using scaled binoculars (7x). On the upper bridge, two primary observers also search for cetaceans and record sighting information. The survey is to be conducted 12 hours per day from 7:00 a.m. to 7:00 p.m. basically when the weather conditions are suitable for observations: visibility better than 2.0 n.miles, and the wind speed less than 17 knots. The vessel speed is planned to be 11.5 knots with slight adjustment to avoid vibration of vessel.

### Experiments

Distance and angle measurement training is to be conducted at the first stage of the survey. The experiment to

evaluate measurement error is to be conducted around the last stage of the survey following the protocol for the IWC/SOWER cruise (IWC, 2008). When large cetaceans such as blue, right and humpback whales are found, photographs are to be taken for photo-identification. Biopsy skin sampling of blue, fin, humpback, right and sperm whales will be opportunistically collected for assessing stock structure.

### **Data entry and analysis**

The researcher will input data collected (weather, effort, sighting and data from experiments) to the computer on board during the survey. These data will be stored at the Institute of Cetacean Research (ICR) and submitted to the IWC secretariat based on the IWC/SC Guidelines (Hammond and Donovan, 2004). Scientists at the ICR also will analyze these data using the methods developed and modified by Hakamada *et al.*, (2006) and by Okamura *et al.* (2004).

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Table 1. Specification of the vessels.

	<i>Yushin-Maru</i>	<i>Yushin-Maru</i>	<i>Yushin-Maru</i>
Call sign	JLZS	JPPV	7JCH
Length overall [m]	69.61	69.61	69.61
Gross tonnage (GT)	720	747	742
Barrel height [m]	19.5	19.5	19.5
IO platform height [m]	13.5	13.5	13.5
Upper bridge height [m]	11.5	11.5	11.5
Bow height [m]	6.5	6.5	6.5
Engine power [PS / kW]	5280 / 3900	5280 / 3900	5280 / 3900

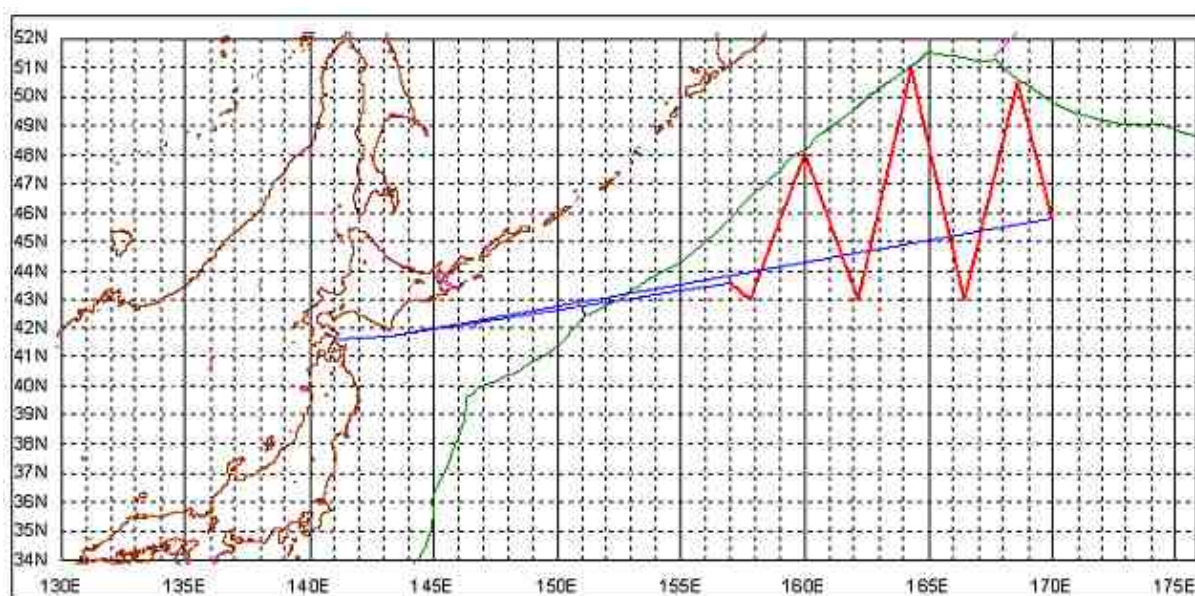


Figure 1. Pre-determined track line for the YS1 cruise (Red lines in the research area and blue line in the transit). Pink and green lines represent the boundaries for the foreign EEZs.

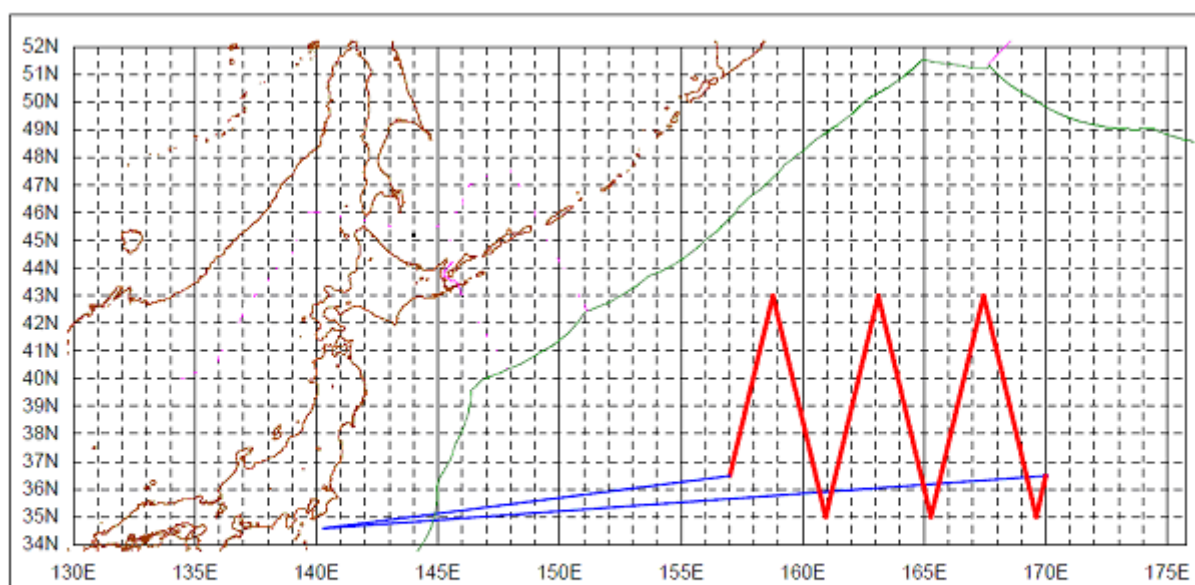


Figure 2. Pre-determined track line for the YS2 cruise (Red lines in the research area and blue line in the transit). Pink and green lines represent the boundaries for the foreign EEZs.

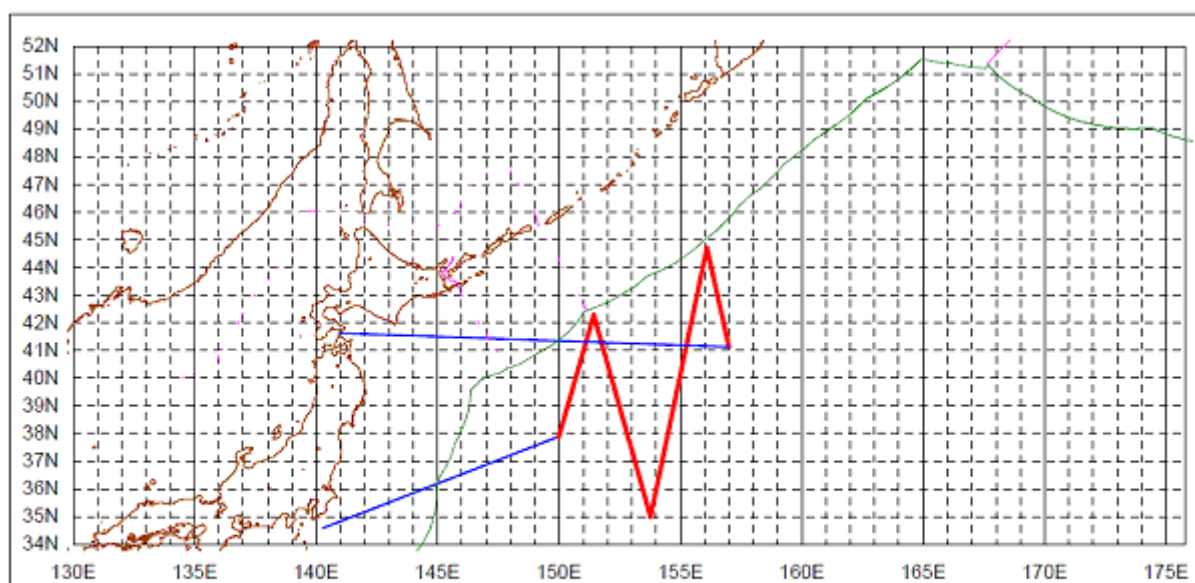


Figure 3. Pre-determined track line for the YS3 cruise (Red lines in the research area and blue line in the transit). Pink and green lines represent the boundaries for the foreign EEZs.