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surveys in the western North Pacific in
2015

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ABSTRACT

A systematic vessel-based sighting survey is planned in the North Pacific for 2015 by Japan as a part of the Japanese Whale Research Program under Special Permit in the western North Pacific (JARPNII). The main objective of this cruise is to examine the distribution and estimate the abundance of sei whale for the management and conservation purposes. The survey will be conducted using the research vessels *Yushin-Maru* and *Yushin-Maru No.2* between 23 April and 6 June, and will involve the area comprised between 35°N-51°N and 157°E-170°E (a part of sub-area 9 for minke whale). For the objective of abundance estimation, distance and angle estimation experiments will be conducted. Biopsy skin samples of blue, fin, sei, Bryde's, humpback and North Pacific right whales will be collected. Photo-identification experiments on blue, North Pacific right and humpback whales will be also conducted. The report of the sighting survey will be submitted to the 2016 IWC SC meeting.

KEY WORD: SEI WHALE, SIGHTING SURVEY, NORTH PACIFIC

INTRODUCTION

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 1995 as a part of the Japanese Whale Research Program under Special Permit in the Western North Pacific (JARP/N/JARPNI). Based on the collected data the distribution patterns of large whales such as blue, fin, sei, Bryde's, common minke, humpback, right and sperm whales and abundance estimates of common minke, sei and Bryde's whales were investigated and reported to the IWC SC (IWC, 2001; 2009).

The National Research Institute of Far Seas Fisheries (NRIFSF) also conducts dedicated sighting survey for cetaceans in the North Pacific since the 1980s (Buckland *et al.*, 1992; Miyashita and Kato, 2004; 2005).

The Government of Japan plans to continue the sighting surveys in the North Pacific in 2015. The collection of sighting data to estimate abundance and biopsy/photo-identification data to examine stock structure will contribute to the work on management and conservation of large whales by the IWC SC. This paper outlines the research plan for the Japanese dedicated sighting surveys in the western North Pacific in 2015.

RESEARCH PLAN

Research vessels

Yushin-Maru (YS1) and *Yushin-Maru No.2* (YS2) 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 each vessel. Specifications of the vessels are shown in Table 1.

Research schedule

The number of the research days is planned for 45 days (YS1 and YS2). A detail of the cruise itinerary is shown in Table 2.

Researchers on board and oversight person

Experienced researchers on line transect whale sighting survey, biopsy and photo-id experiments were selected as researchers: Hideto Honma (YS1); Masahiro Yamazaki (YS2). Koji Matsuoka (Institute of Cetacean Research) is the responsible person for these surveys. He will be the oversight person on behalf of the IWC SC.

Research area and track line design

The research area for the survey is comprised between 35°N-51°N and 157°E-170°E (a part of sub-area 9 for minke whale). The survey blocks and pre-determined track lines are shown in Table 3 and Figures 1. The Longitudinal start point of the track lines are decided at random using the “Distance program (ver.6.0)” and the number of the line (width in the longitude) is decided by the research schedule based on the IWC survey guideline (IWC, 2005).

Primary searching activity

Sighting 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 6:00 a.m. to 6:00 p.m. basically when the weather conditions are suitable for observations: visibility better than 2.0 n.miles, and the wind speed less than 21 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, North Pacific right and humpback whales are found, photographs are to be taken for photo-identification. Biopsy skin sampling of blue, fin, sei, Bryde's, common minke, humpback, North Pacific right and sperm whales will be collected with effort data including weather data for investigating stock structure.

Data entry and analysis

The researcher will input data collected (weather, effort, sighting and from experiments data) to the computer on board during the survey as same as previous IWC-SOWER cruises. These data will be stored at the Institute of Cetacean Research (ICR) and submitted to the IWC secretariat based on the IWC/SC Guidelines (IWC, 2005). Scientists at the ICR also will analyze these data using the methods developed and modified by Hakamada *et al.*, (2009), Matsuoka *et al.*, (2011) and by Okamura *et al.* (2004).

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Table 1. Specification of the research vessels used for this survey.

Vessel name	<i>Yushin-Maru</i>	<i>Yushin-Maru No.2</i>
Call sign	JLZS	JPPV
Length overall [m]	69.61	69.61
Gross tonnage (GT)	720	747
Barrel height [m]	19.5	19.5
IO platform height [m]	13.5	13.5
Upper bridge height [m]	11.5	11.5
Bow height [m]	6.5	6.5
Engine power [PS / kW]	5280 / 3900	5280 / 3900

Table 2. Expected cruise itinerary of this survey.

Date	Event
23-April-2015	Vessels depart Shimonoseki, Japan
30-April	Vessels arrive at the starting point in the research area
30-May	Vessels complete the research at 35°00'N (30 days in the research area)
6-June	Vessels arrive Shioyama, Japan

Table 3. Waypoint (WP) in the research area.

West	WP	Lat.	Long.
	101	47 - 43.7 N	159 - 28.9 E
	102	44 - 29.0 N	163 - 30.0 E
	103	41 - 14.0 N	157 - 0.0 E
	104	37 - 59.0 N	163 - 30.0 E
	105	35 - 0.0 N	157 - 32.0 E

East	WP	Lat.	Long.
	201	35 - 0.0 N	168 - 1.3 E
	202	35 - 59.3 N	170 - 0.0 E
	203	39 - 14.3 N	163 - 30.0 E
	204	42 - 29.3 N	170 - 0.0 E
	205	45 - 44.3 N	163 - 30.0 E
	206	48 - 59.3 N	170 - 0.0 E
	207	51 - 22.9 N	165 - 12.9 E

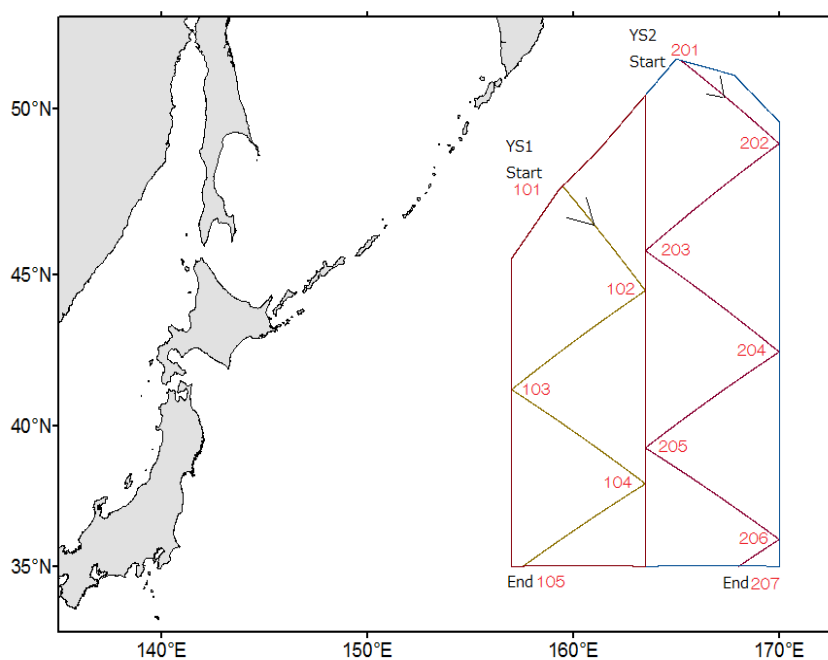


Figure 1. Research area of 2015 survey and pre-determined track line for this survey.