

Research plan for a cetacean sighting surveys in the Western North Pacific in 2013

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ABSTRACT

The systematic vessel-based sighting survey is planned in the North Pacific for 2013. The main objective is to examine the distribution and estimate the abundance of common minke and sei whales for management purposes. The survey will be conducted using the research vessels *Yushin-Maru* and *Yushin-Maru No.2* between 18 May and 26 June and will cover the area comprised between 35°N-46°N and 140°E-157°E (sub-areas 7W, 7E and 8). For the 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 survey will be submitted to the 2014 IWC SC meeting.

KEY WORD: COMMON MINKE WHALE, 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 (JARPN/JARPNII).

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 2013. The collection of sighting data to estimate abundance and biopsy/photo-identification data to examine stock structure will contribute to the work on management 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 2013.

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 survey (YS1 and YS2): 40 days

18 May: Leave Shiogama Port, Miyagi Prefecture

26 June: Arrive at Shiogama Port, Miyagi Prefecture

Researchers on board and oversight person

Experienced researchers on line transect whale sighting survey, biopsy and photo-id experiments were selected

as researchers: Takahiro Konagai (YS1); Tooru Takamatsu (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-46°N and 140°E-157°E (sub-areas 7W, 7E and 8). The survey blocks and pre-determined track lines are shown in Figures 1. Waypoint (WP) for each sub-areas, calculated by the PROGRAM DISTANCE ver. 6.0 (equal spaced zigzag) are shown in Tables 2a and 2b (Thomas *et al.*, 2010). The start point of the track lines are decided at random and the number of the line (width in the latitude) 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 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, 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 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.*, (2006), Matsuoka *et al.*, (2011) and by Okamura *et al.* (2004).

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Table 1. Specification of the research vessels used for the dedicated sighting survey in the North Pacific.

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 2a. Waypoint (WP) for sub-areas 7W and 7E.

WP	Position				Co.	dist	WP	Position				Co.	dist								
	Lat.		Long					Lat.		Long											
701	42	-	12	N	146	-	16	E	246°	108.9	721	35	-	00	N	147	-	10	E	301°	9.6
702	41	-	27	N	144	-	03	E	114°	146.6	722	35	-	05	N	147	-	00	E	64°	163.4
703	40	-	27	N	147	-	00	E	253°	185.9	723	36	-	18	N	150	-	00	E	296°	160.1
704	39	-	33	N	143	-	08	E	110°	192.2	724	37	-	28	N	147	-	00	E	62°	161.3
705	38	-	27	N	147	-	00	E	255°	214.5	725	38	-	45	N	150	-	00	E	295°	154.2
706	37	-	30	N	142	-	38	E	107°	218.8	726	39	-	51	N	147	-	00	E	69°	147.6
707	36	-	27	N	147	-	00	E	256°	244.6	727	40	-	45	N	150	-	00	E		
708	35	-	28	N	142	-	07	E	104°	112.3											
709	35	-	00	N	144	-	20	E													
									Total	1423.8									Total	796.2	

Table 2b. Waypoint (WP) for sub-area 8.

WP	Position		Co.	dist	WP	Position		Co.	dist
	Lat.	Long				Lat.	Long		
801	43 - 09 N	153 - 24 E	158°	11.8	821	35 - 00 N	154 - 13 E	64°	151.9
802	42 - 58 N	153 - 30 E	242°	127.9	822	36 - 08 N	157 - 00 E	295°	185.5
803	41 - 58 N	150 - 57 E	118°	129.5	823	37 - 26 N	153 - 30 E	65°	182.9
804	40 - 58 N	153 - 30 E	249°	170.8	824	38 - 44 N	157 - 00 E	296°	180.2
805	39 - 58 N	150 - 00 E	110°	173.0	825	40 - 02 N	153 - 30 E	64°	177.4
806	38 - 58 N	153 - 30 E	250°	175.2	826	41 - 20 N	157 - 00 E	296°	174.6
807	37 - 58 N	150 - 00 E	110°	177.3	827	42 - 38 N	153 - 30 E	63°	171.8
808	36 - 58 N	153 - 30 E	251°	179.3	828	43 - 56 N	157 - 00 E	348°	75.5
809	35 - 58 N	150 - 00 E	109°	176.1	829	45 - 10 N	156 - 38 E		
810	35 - 00 N	153 - 24 E							
			Total	1320.9				Total	1299.8

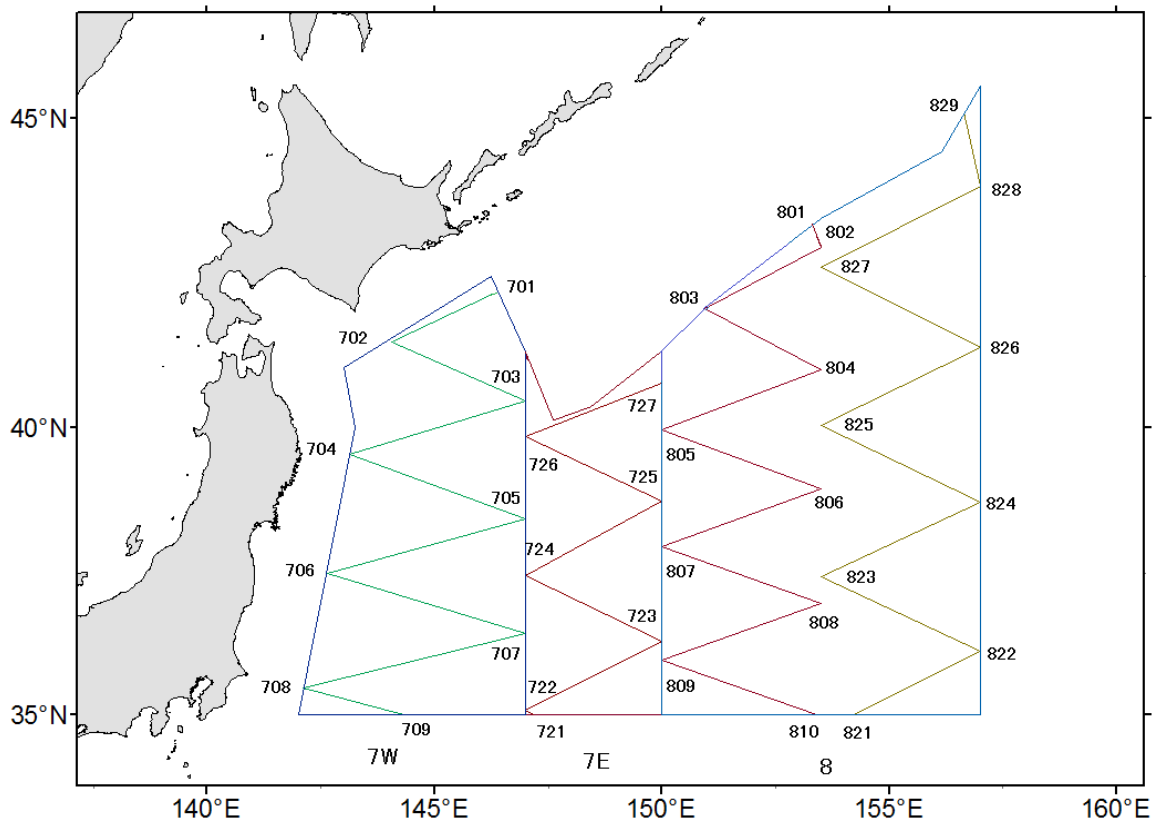


Figure 1. Pre-determined track line in May and June. Blue lines represent the boundaries for this survey. YS1 start survey from WP701 to WP 727. YS2 start survey from WP801 to WP 829.