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ABSTRACT

A systematic large-scale vessel-based sighting survey was conducted in 2014 by Japan to examine the distribution and abundance of large whales in the western North Pacific. The research area was set between 20° N and 30° N and between 140° E and 170° E (the sub-area 1 for North Pacific Bryde's whales). The research area was divided into northern and southern strata by 25°N latitude. The US EEZ in the southern stratum (Northern Mariana Islands EEZ and Marshall Islands EEZ) was also surveyed under a US research permit except biopsy permit. The survey was conducted between 5 August and 5 September. The research vessels *Yushin-Maru* and *Yushin-Maru No.2* were engaged for this survey. A total of 4,813.0 n.miles was searched in the research area. Successful coverage of the searching efforts of the planned cruise track line was 96.6% for the northern stratum and 90.5 % for the southern stratum, respectively. In total, two large whale species including Bryde's (56 schools / 72 individuals including 9 mother and calf pairs) and sperm whale (24/70) were sighted during the survey. Biopsy skin samples using a crossbow were successfully collected from Bryde's whales (16 individuals, including one mother and calf pair). No biopsy experiments were conducted in the US EEZ. In August, Bryde's whales were widely distributed in the western North Pacific between 30°N and 20°N including in the US EEZ. These Bryde's whale sighting data including 16 biopsy samples in the sub-area 1, collected during this survey are useful for the western North Pacific Bryde's whale Implementation Review which will be conducted in 2017 SC meeting.

KEY WORD: BRYDE'S WHALE, SPERM WHALES, SURVEY VESSEL, 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, North Pacific 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, 2010, Pastene *et al.*, 2007, 2008, 2009, Hakamada *et al.*, 2009, Matsuoka *et al.*, 2009, Murase *et al.*, 2009). The National Research Institute of Far Seas Fisheries (NRIFSF) has also conducted dedicated sighting survey for cetaceans in the North Pacific since the 1980s (Buckland *et al.*, 1992; Miyashita *et al.*, 1995., Miyashita and Kato, 2004; 2005, Kanaji, 2012). In 2014 the Government of Japan planned to continue the sighting surveys in the North Pacific. 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 (IWC, 2010). This paper reports the result of the Japanese dedicated sighting surveys conducted in 2014. The plan for this survey where in the sub-area 1 for the North Pacific Bryde's whale, had been presented to the 2014 IWC/SC meeting (Matsuoka *et al.*, 2014) and endorsed by the SC (IWC, 2014). Under SC agreement, the research permit from the US Government for the US EEZ (Northern Mariana Islands EEZ and Marshall Islands EEZ) for the passing survey mode (no closing mode for whales) was permitted for the 2014 survey (the clearance request application U2014-021, approved 28 July, 2014 by Roberta Barnes, Authorizations Coordinator, 202-647-0240).

MATERIALS AND METHODS

The surveys were conducted in 2014 in the western North Pacific by the research vessel *Yushin-Maru* (YS1) and *Yushin-Maru No.2* (YS2). The vessels were equipped with a top barrel platform (TOP) and upper bridge. Specifications of these vessels are shown in Appendix A.

Research area and period

The research area was set between 20° N and 30° N and between 140° E and 170° E (the sub-area 1 for North Pacific Bryde's whales, see Figures 1a and 1b), during 5 August to 9 September (Table 1). The research area was divided into northern and southern strata by 25°N latitude. The US EEZ in the southern stratum (Northern Mariana Islands EEZ and Marshall Islands EEZ) was also surveyed under a US research permit except biopsy permit (Figure 1c).

Track line design

The Survey blocks and pre-determined track lines are shown in Table 2 and Figures 1c. The Latitudinal 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).

Sighting procedure

Passing mode with abeam closing was used, which followed the protocol endorsed for the IWC/SOWER cruise (IWC, 2008). There were two primary observers in the top barrel (TOP) and the upper bridge (captain and helmsman), respectively. On the TOP, two observers conducted searching for cetaceans by using scaled binoculars (7x). On the upper bridge, two primary observers also searched for cetaceans and recorded sighting information. The survey was conducted 12 hours per day from 7:00 a.m. to 7:00 p.m. basically when the weather conditions were suitable for observations: visibility better than 2.0 n.miles and wind speed less than 21 knots. The vessel searching speed was planned to be 11.5 knots with slight adjustment to avoid vibration of vessel.

Research personnel

One researcher was on board of each research vessel. The researchers had considerable experience on whale line transect surveys in the North Pacific and Antarctic as well as experience conducting photo-id and biopsy experiments through participation in the IWC/IDCR-SOWER and JARPN II Programs.

Yushin-Maru (YS1)
Hideto Honma (Japan) – sighting data, photo-ID, biopsy
Yushin-Maru No.2 (YS2)
Futoshi Yamaguchi (Japan)– sighting data, photo-ID, biopsy

Experiments

Distance and angle experiments were conducted earlier in the Surveys. The experiment to evaluate measurement error was conducted late in the survey following the protocol of the IWC/SOWER cruise (IWC, 2008). When large cetaceans such as blue, humpback and North Pacific right whales were found, photo-id experiments were conducted. Biopsy skin samples of blue, fin, Bryde's, humpback, North Pacific right and sperm whales were opportunistically collected.

RESULTS AND DISCUSSION

Brief narrative of the Surveys

Research vessels (YS1 and YS2) departed from Tokyo and Shioyama, Japan respectively on 1 August and started the survey in the research area on 5 August (Table 1). The YS1 surveyed in the northern stratum (there are no foreign EEZ), and YS2 surveyed in the southern stratum (including US EEZ). They surveyed on the pre-determined trackline in each stratum (Table 2). The vessels left the research area on 9 September and arrived at Shimonoseki on 14 September.

Searching effort

A summary of the period covered and sighting effort in each Survey block is shown in Table 3. A total of 2,466.3 n.miles (planned cruise track was 2,553.0 n.miles, 96.6 % covered) in the northern strata, and 2,346.7 n.miles (planned cruise track was 2,592.4 n.miles, 90.5 % covered) in the southern strata were searched.

Sightings

Sightings made are summarized by the whale research area (Table 4a), and by the US EEZ. Figures 2 show the location of these sightings.

Bryde's Whale

Bryde's whales were the only species of baleen whale sighted and were widely distributed in the northern and southern blocks in the whole research area (Figure 2). A total of 56 schools (72 individuals) were observed in the

research area. A total of 20 schools (24 individuals) including 5 mother and calf pairs were observed in the northern stratum, and of 36 schools (48 individuals) including 4 mother and calf pairs were observed in the southern stratum (Table 4a). 9 schools were mother and calf pairs. Observed mean school size was 1.29 (n=56). Range of the estimated body length was 11.2 – 13.8 meters except calves. Range of the sea temperature of the sighting position was 27.8°C – 30.1°C. Bryde's whales are widely distributed in summer in the western North Pacific south of 40°N based on the recent JARPNII dedicated sighting surveys and JARP/JP/JP II catches ((Shimada, 2004; Pastene *et al.*, 2009). Present results show that Bryde's whales are also widely distributed in summer in the western North Pacific south of 30°N.

A total of 12 schools (15 individuals) of Bryde's whales were observed in the US EEZ. A total of 6 schools (8 individuals) were observed in the waters around the Northern Mariana Islands, and a total of 6 schools (7 individuals) were observed in the waters around the Marshall Islands (Table 4b and 4c). There was no mother and calf pair observed in both areas of the US EEZ.

Sperm Whale

Sperm whales were the most frequently sighted toothed whales in the whole research area (Tables 4a and 4b, and Figure 4). A total of 24 schools (70 individuals) were observed during the Survey. Observed mean school size was 2.92 (n=24). At least one mother and calf pair was observed in the Northern Mariana Islands EEZ (Table 5c). Because of limited closing to the schools, there was little information for body length and calves. Range of the sea temperature of the sighting position was 26.8°C – 29.7°C.

A total of 3 schools (5 individuals) of sperm whales were observed in the Northern Mariana Islands EEZ. One mother and calf pair was observed in the Northern Mariana Islands EEZ. There were no sperm whales observed in the Marshall Islands US EEZ (Table 4b and 4c).

Experiments

Estimated Angle and Distance

The Estimated Angle and Distance Training Exercise were conducted early in the Surveys. During the exercise the observers familiarized themselves with distance estimates from the TOP and Upper Bridge. The Estimated Angle and Distance Experiment were conducted on 9 August by YS1, and 12 August by YS2.

Photo-ID experiments

No photo-ID target species were observed during the survey.

Biopsy

All of the biopsy attempts were made using the compound crossbow system. Allocation of research time to biopsy attempts was initially restricted with the aim of maximizing the searching effort to cover the research area. A total of 16 biopsy samples were collected from Bryde's whales including one mother and calf pair (Tables 5a and 5b, Figure 3). All samples were stored at the ICR laboratory. No biopsy experiments were conducted in the US EEZ.

New information for western North Pacific Bryde's whale management

The 2014 survey was conducted in sub-areaal for the defined for the western North Pacific Bryde's whales (Figure 1a). These Bryde's whale sighting data including 16 biopsy samples collected during this survey are useful for the Bryde's whale *Implementation Review* for this stock which will be conducted in 2017 SC meeting.

Report of the IWC oversight and data submission to the IWC

Detailed report of the IWC oversight was shown in Appendix B. All equipment and the survey method were the same as in the past sighting surveys. The design of the survey blocks and track lines was improved to cover each survey block based on the IWC guidelines. The planned sighting procedure was in accordance with the guidelines agreed by the SC (IWC, 2005). Objectives and procedure of the survey were explained to the captains, officers, crew and researcher in advance. Sighting data was sent to the IWC secretary and confirmed on 26 December 2014.

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Table 1. Cruise itinerary of this survey.

Date	Event
1-Aug-2014	Vessels departed Tokyo (YS1) and Shiogama (YS2), Japan
5-Aug	Vessels started in the research area
9-Sep	Vessels completed the research area area
14-Sep	Vessels arrived Shimonoseki (YS1 & YS2), Japan

Table 2. Waypoint (WP) in the research area.

North	WP	Lat.				Long			
	101	28	-	01.9	N	140	-	00.0	E
	102	25	-	00.0	N	142	-	43.7	E
	103	30	-	00.0	N	147	-	13.7	E
	104	25	-	00.0	N	151	-	43.7	E
	105	30	-	00.0	N	156	-	13.7	E
	106	25	-	00.0	N	160	-	43.7	E
	107	30	-	00.0	N	165	-	13.7	E
	108	25	-	00.0	N	169	-	43.7	E
	109	25	-	18.1	N	170	-	00.0	E

South	WP	Lat.				Long			
	201	22	-	05.8	N	140	-	00.0	E
	202	25	-	00.0	N	142	-	36.8	E
	203	20	-	00.0	N	147	-	06.8	E
	204	25	-	00.0	N	151	-	36.8	E
	205	20	-	00.0	N	156	-	06.8	E
	206	25	-	00.0	N	160	-	36.8	E
	207	20	-	00.0	N	165	-	06.8	E
	208	25	-	00.0	N	169	-	36.8	E
	209	24	-	34.2	N	170	-	00.0	E

Table 3. Summary of the survey periods and searching effort (n.miles).

Research vessels	Cruise period	Research area period	Planned cruise track (n.miles)	Searching effort (n.miles)	Coverage of effort (n.miles)
Northern (YS1)	2014.8.1-9.14	2014.8.3- 9.9	2,553.0	2,466.3	96.6%
Southern (YS2)	2014.8.1-9.14	2014.8.3- 9.9	2,592.4	2,346.7	90.5%
Total	2014.8.1-9.14	2014.8.3- 9.9	5,145.4	4,813.0	93.5%

Table 4a. Number of sightings by species and stratum in the research area. (): the number of mother and calf pairs.

Species	Northern stratum		Southern stratum		Total	
	sch.	Ind.	sch.	Ind.	sch.	Ind.
Bryde's whale	20(5)	24	36(4)	48	56(9)	72
Sperm whale	17	60	7	10	24	70
Unid. Large whale	2	2	5	5	7	7
Total	39	86	48	63	87	149

Table 4b. Number of sightings by species in the US EEZ.

US EEZ	N. Mariana Islands EEZ		Marshall Islands EEZ		Total	
Searching effort (n.miles)	332.4		292.5		624.9	
Species	sch.	Ind.	sch.	Ind.	sch.	Ind.
Bryde's whale	6	8	6	7	12	15
Sperm whale	3	5	0	0	3	5
Unid. Large whale	2	2	0	0	2	2
Total	11	15	6	7	17	22

Table 4c. List of all whale sightings in the US EEZ.

Vessel	Year	Month	Day	Sighting number	Hour	Min.sec	Latdeg	Latmin	N/S	Longdeg	Longmin	E/W	Species	School size	Estimated Length max	Estimated Length min	Sea temp.	Remarks
YSI	2014	8	13	1	8	12.38	22	5971	N	144	2567	E	Bryde's whale	1	11.3	-	28.4	N. Mariana Islands EEZ
YSI	2014	8	13	2	8	40.33	22	5809	N	144	2778	E	Bryde's whale	2	13.2	12	28.4	N. Mariana Islands EEZ
YSI	2014	8	13	3	9	13.03	22	5656	N	144	2904	E	Bryde's whale	2	12.1	11.8	28.4	N. Mariana Islands EEZ
YSI	2014	8	23	4	15	55.06	22	3076	N	167	2135	E	Bryde's whale	2	12.8	12.3	28.9	Marshall Islands EEZ
YSI	2014	8	23	5	16	3.22	22	2955	N	167	2025	E	Bryde's whale	1	12.8	-	28.9	Marshall Islands EEZ
YSI	2014	8	24	1	8	5.13	22	998	N	167	241	E	Bryde's whale	1	12.5	-	28.2	Marshall Islands EEZ
YSI	2014	8	25	1	12	13.49	20	27	N	165	660	E	Bryde's whale	1	12.5	-	29	Marshall Islands EEZ
YSI	2014	8	25	2	14	50.18	20	2195	N	164	4729	E	Bryde's whale	1	12.3	-	29.1	Marshall Islands EEZ
YSI	2014	8	25	3	16	24.59	20	3553	N	164	3508	E	Bryde's whale	1	12.6	-	29	Marshall Islands EEZ
YSI	2014	9	7	1	11	27.53	20	3137	N	147	3481	E	Sperm whale	3	13.2	-	29.2	N. Mariana Islands EEZ, Mother & calf pair
YSI	2014	9	7	2	12	29.49	20	2218	N	147	2632	E	Sperm whale	1	-	-	29.7	N. Mariana Islands EEZ
YSI	2014	9	7	3	12	37.1	20	2109	N	147	2533	E	Sperm whale	1	-	-	29.7	N. Mariana Islands EEZ
YSI	2014	9	8	1	8	53.41	20	3745	N	146	3364	E	Bryde's whale	1	11.8	-	29.4	N. Mariana Islands EEZ
YSI	2014	9	8	2	9	52.51	20	3814	N	146	3274	E	Bryde's whale	1	12.4	-	29.5	N. Mariana Islands EEZ
YSI	2014	9	8	3	9	54.05	20	3833	N	146	3259	E	Unid. Large whale	1	-	-	29.5	N. Mariana Islands EEZ
YSI	2014	9	8	4	10	37	20	3907	N	146	2987	E	Unid. Large whale	1	-	-	29.3	N. Mariana Islands EEZ
YSI	2014	9	9	1	6	34.3	21	3421	N	145	4312	E	Bryde's whale	1	11.8	-	29.5	N. Mariana Islands EEZ

Table 5a. Number of biopsy samples collected, by each stratum. *: Including one mother and calf pair in the Southern strata.

Biopsy	North (YS1)	South (YS2)	Total
Bryde's whale	10	6*	16

Table 5b. Number of biopsy samples collected, by each stratum. Including one mother and calf pair in the Southern strata.

Vessel	Date	Sight No.	Species	SCL size	Sighted Position			Start time of BX	End time of BX	Experiment duration	Est. body length of target ind. [m]	number of shoot	number of hit	number of sample	Sample No.	equipment	Notes.	
					Lat. [min.]	Long. [min.]	[min.]											
YSI	20140812	2	Bryde's	1	23	4740	143	4035	12:01:20	12:06:05	00:04:45	11.3	3	1	1	J14NYSI Br09	Crossbow	
YSI	20140812	3	Bryde's	1	23	3758	143	5220	13:26:55	13:43:08	00:16:13	12.0	1	0	0	-	Crossbow	
YSI	20140823	3	Bryde's	1	22	4252	167	2910	14:28:01	14:52:01	00:24:00	13.0	4	0	0	-	Crossbow	
YSI	20140827	3	Bryde's	1	23	5259	161	3615	17:05:05	17:26:27	00:21:22	11.7	2	1	1	J14NYSI Br10	Crossbow	
YSI	20140828	1	Bryde's	1	23	5804	161	3396	06:30:19	06:46:30	00:16:11	12.8	4	1	1	J14NYSI Br11	Crossbow	
YSI	20140828	8	Bryde's	1	24	1465	161	1920	09:47:02	09:59:12	00:12:10	12.6	2	0	0	-	Crossbow	
YSI	20140828	11	Bryde's	2	24	4731	160	2691	17:08:42	17:22:18	00:13:36	12.0	0	0	0	-	Crossbow	
YSI	20140831	1	Bryde's	1	20	1941	156	2452	12:27:58	12:52:08	00:24:10	12.8	4	0	0	-	Crossbow	
YSI	20140904	1	Bryde's	1	24	2089	152	1818	06:26:35	06:51:30	00:24:55	12.7	3	0	0	-	Crossbow	
YSI	20140905	1	Bryde's	1	24	103	150	3928	08:20:23	08:50:41	00:30:18	12.2	7	1	0	-	Crossbow	
YSI	20140905	4	Bryde's	1	23	4449	150	2794	10:38:58	10:58:03	00:19:05	12.4	2	0	0	-	Crossbow	
YSI	20140906	2	Bryde's	2	21	5960	148	5421	12:45:58	12:54:57	00:08:59	12.5	1	0	0	-	Crossbow	
YSI	20140906	3	Bryde's	2	21	5980	148	5330	13:05:16	13:21:22	00:16:06	13.0 12.7	2	2	1	J14NYSI Br12	Crossbow	
YSI	20140906	4	Bryde's	2	21	5349	148	5189	14:08:49	14:22:59	00:14:10	13.1 9.0	4	2	2	J14NYSI Br13 - J14NYSI B14	Crossbow	Mother and calf pair
YS2	20140807	2	Bryde's	1	25	1206	151	3306	10:56:05	11:17:54	00:21:49	13.5	3	0	0	-	Crossbow	
YS2	20140808	2	Bryde's	1	25	5696	152	3410	09:50:50	10:18:25	00:27:35	11.8	3	0	0	-	Crossbow	
YS2	20140824	5	Bryde's	1	27	1988	167	3963	14:49:04	14:59:36	00:10:32	13.5	4	0	0	-	Crossbow	
YS2	20140825	2	Bryde's	1	28	1266	166	5182	10:09:14	10:15:28	00:06:14	12.2	1	1	1	J14NYS2 Br18	Crossbow	
YS2	20140825	3	Bryde's	1	28	2657	166	3816	12:00:21	12:08:13	00:07:52	12.2	4	1	1	J14NYS2 Br19	Crossbow	
YS2	20140825	4	Bryde's	1	28	3755	166	3202	13:26:13	13:42:42	00:16:29	12.8	4	0	0	-	Crossbow	
YS2	20140828	3	Bryde's	1	27	1750	162	4597	10:22:13	10:24:13	00:02:00	13.4	1	1	1	J14NYS2 Br20	Crossbow	
YS2	20140829	1	Bryde's	1	26	0954	161	4517	07:30:34	07:45:23	00:14:49	12.7	3	1	1	J14NYS2 Br21	Crossbow	
YS2	20140829	2	Bryde's	1	26	0928	161	4494	07:50:40	07:56:28	00:05:48	12.5	4	1	1	J14NYS2 Br22	Crossbow	
YS2	20140829	3	Bryde's	1	25	5707	161	3422	09:33:03	09:36:43	00:03:40	13.8	3	1	1	J14NYS2 Br23	Crossbow	
YS2	20140829	4	Bryde's	1	25	4894	161	2698	10:33:00	10:37:11	00:04:11	12.6	2	1	1	J14NYS2 Br24	Crossbow	
YS2	20140829	7	Bryde's	1	25	2768	161	0805	13:42:01	14:00:09	00:18:08	12.8	3	0	0	-	Crossbow	
YS2	20140830	2	Bryde's	1	25	2320	160	2344	08:29:10	08:31:43	00:02:33	12.4	1	1	1	J14NYS2 Br25	Crossbow	
YS2	20140831	1	Bryde's	1	26	3728	159	1736	06:46:11	06:52:26	00:06:15	12.8	2	2	1	J14NYS2 Br26	Crossbow	
YS2	20140907	2	Bryde's	1	26	4083	141	1354	11:45:45	11:54:16	00:08:31	12.8	1	1	1	J14NYS2 Br27	Crossbow	

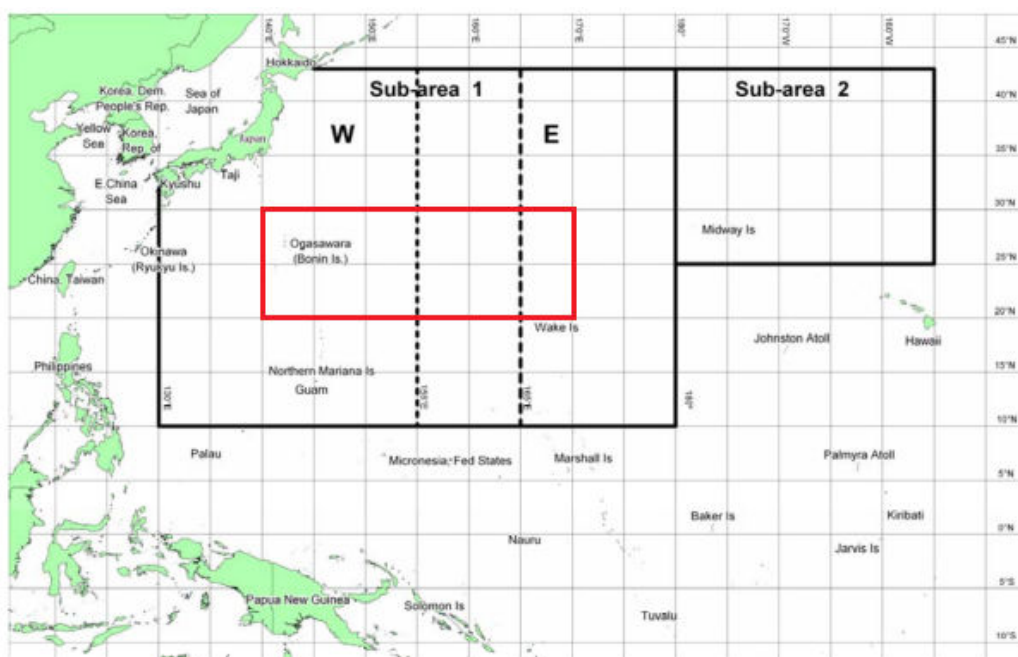


Figure 1a. Map of the western North Pacific showing the sub-areas defined for the western North Pacific Bryde’s whales. Note: the boundary between the 1W and 1E sub-areas is now set at 165°E (IWC, 2007). Red boundary line shows the research area of this survey.

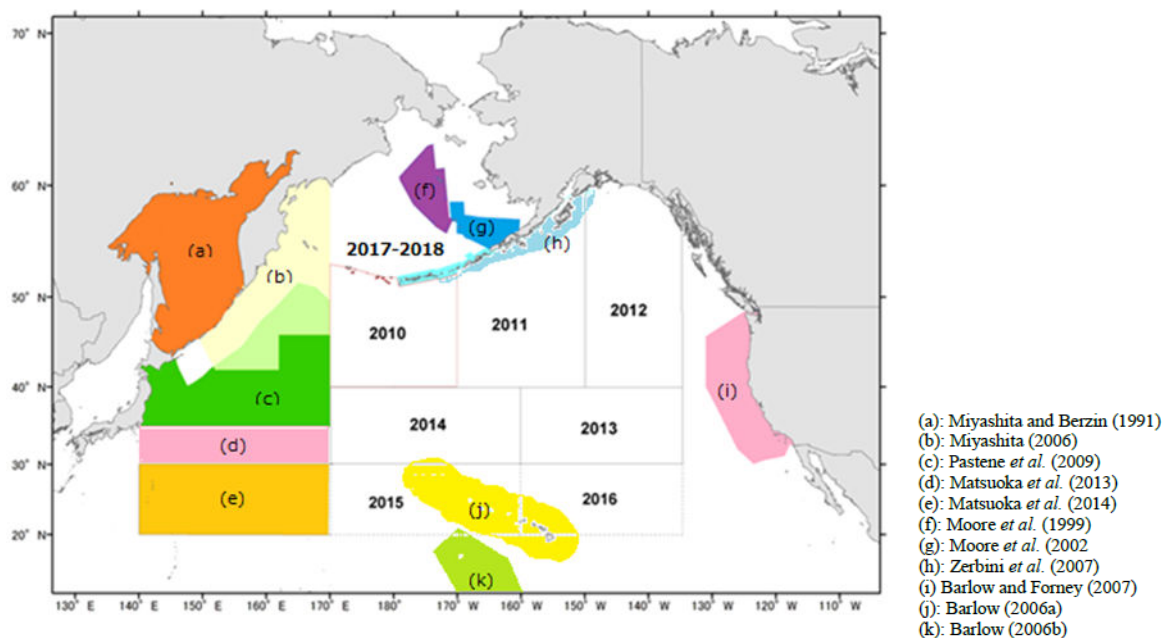


Figure 1b. Recent sighting surveys conducted in the North Pacific including IWC-POWER surveys (2010-2014). Coloured areas represent surveys including the present survey as “(e)”, referred from (IWC, 2015).

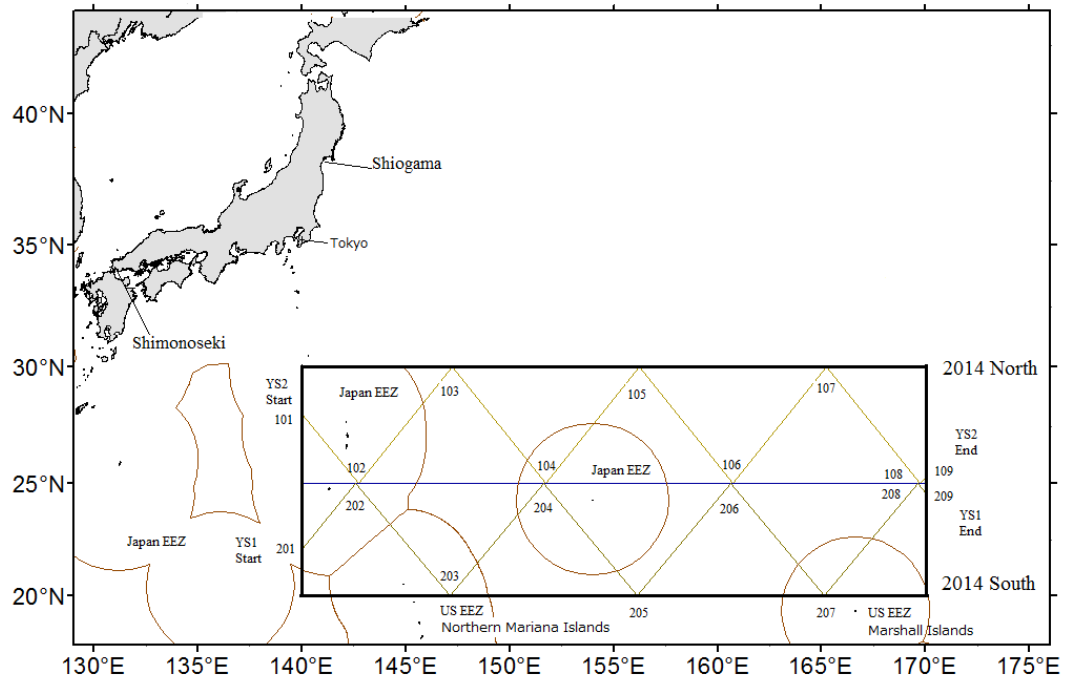


Figure 1c. The cruise track line for the northern and southern strata with Japan and US EEZ.

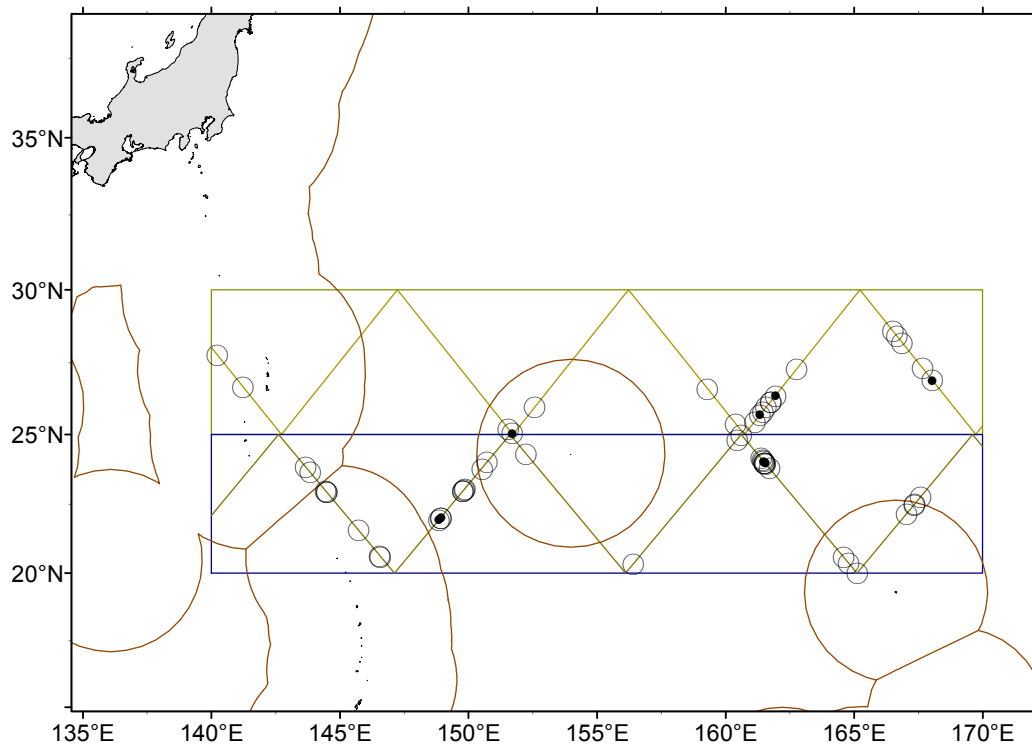


Figure 2. Positions of Bryde's (circle) whale sightings including mother and calf pairs (black circle).

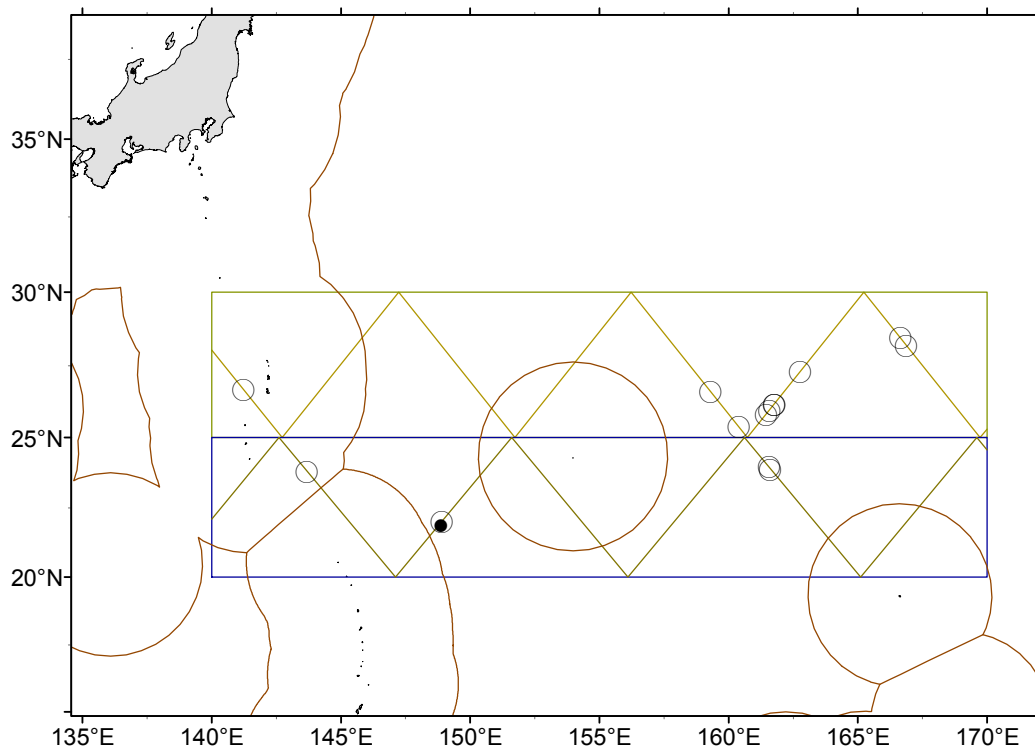


Figure 3. Positions of biopsy sample collected from Bryde's whales (white square) and mother and calf pair of Bryde's whale (black circle).

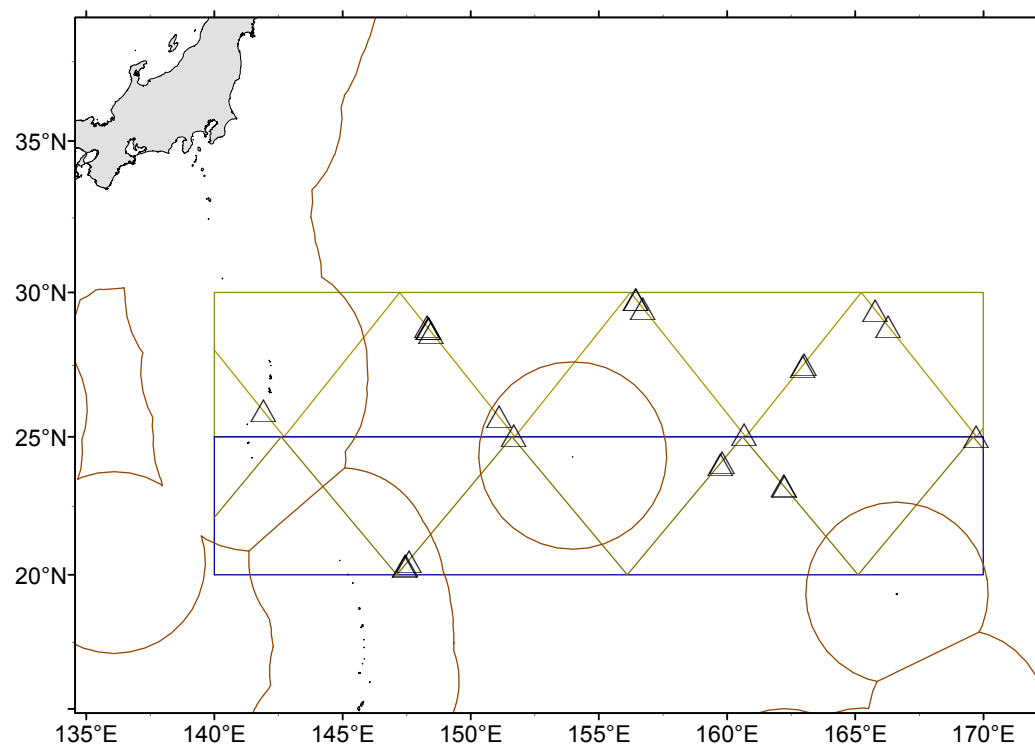


Figure 4. Positions of sperm (circle) whale sightings in the research area.

APPENDIX A. SHIP SPECIFICATIONS AND CREW LIST OF YUSHIN-MARU AND YUSHIN-MARU NO.2.

Ship photo:



Ship specifications:

	<i>Yushin-Maru</i>	<i>Yushin-Maru No.2</i>
Call sign	JLZS	JPPV
Length overall [m]	69.61	69.61
Molded breadth [m]	724	747
Gross tonnage (GT)	19.5	19.5
Barrel 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

Crew list:

	<i>Yushin-Maru</i>	<i>Yushin-Maru No.2</i>
Researcher	Futoshi Yamaguchi	Hideto Honma
Captain	Chikamasa Okoshi	Koji Maki
Chief Officer	Shintarou Takeda	Takehisa Koyanagi
Second Officer	Tomoya Hirai	Chikara Omukai
Chief Engineer	Yasunari Murai	Akhide Oide
First Engineer	Takayuki Hagiwara	Shigeki Miyamoto
Second Engineer	Fumiyoshi Shimoda	Koji Takamatsu
Third Engineer	Takashi Matsubara	Takeshi Hamano
Fireman	Ryutaro Masui	-
Chief Operator	Kenji Tsuda	Takeshi Semii
Boatswain	Takuitsu Abe	Kenji Wakatsuki
Quartermaster	Norihiko Nakamura	Takashi Kurogi
Quartermaster	Kazumitsu Kurisu	Takato Sawabe
Quartermaster	Takashi Kominami	Takahiro Nagai
Quartermaster	Kosuke Matsuguchi	-
Sailor	Yuki Yoshino	Hayata Nawa
Sailor	Yuto Yamauchi	Hiroaki Yamaya
Chief Steward	Seichi Hamashita	Kenichi Yasunaga
Steward	-	Kanji Mae

Appendix B.

Oversight for the 2014 Japanese dedicated sighting survey in the western North Pacific

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The plan of this survey was presented to the 2014 IWC/SC meeting (Matsuoka *et al.*, 2014) and endorsed by the Scientific Committee (IWC, 2014). On behalf of the IWC Scientific Committee I carried out the oversight work during the 2014 Japanese dedicated sighting survey in the western North Pacific. This is a brief report of the oversight activities conducted on that survey.

Preparatory work

The pre-cruise meeting carried out at Tokyo and at Shigama on 31 July 2015. The survey organizers, researchers and crewmembers also participated in that meeting. During the meeting the organizers explained the objective of the survey and the procedure to be used for both sightings and experiments. The planned sighting procedure was in order with that agreed by the Scientific Committee. The research vessels *Yushin-Maru* and *Yushin-Maru No.2* were engaged for this survey.

The research area was set between 20° N and 30° N and between 140° E and 170° E (the sub-area 1 for North Pacific Bryde's whales). The research area was divided into northern and southern strata by 25°N latitude. The US EEZ in the southern stratum (Northern Mariana Islands EEZ and Marshall Islands EEZ) was also surveyed under a US research permit except biopsy permit. The survey was conducted between 5 August and 5 September. The vessels were assigned to cover pre-determined transects in these areas by the passing with abeam closing mode. Two experienced researcher was assigned to work on board each vessel.

Oversight method and period

The research activities of the vessels were oversight by e-mail communication and by examining the daily report prepared by each researchers on board. In some instances Inmarsat satellite telephone calls were made for further clarification of the activities, procedure and sightings made. Further, geographical positions and weather information of each vessel were tracked each other per day. Over sight activity were carried between 1 August and 14 September.

Brief narrative of the oversight vessel

Research vessels (YS1 and YS2) departed from Tokyo and Shioyama, Japan respectively on 1 August and started the survey in the research area on 5 August. The YS1 surveyed in the northern stratum (there are no foreign EEZ), and YS2 surveyed in the southern stratum (including US EEZ). The vessels left the research area on 9 September and arrived at Shimonoseki on 14 September.

Post-cruise meeting

I participated in a post-cruise meeting held on 14 September 2015. Survey organizers, researchers and the Captain participated in that meeting. Apart to discuss and assess the results of the surveys, the researchers engaged in the verification and checking of data.

Conclusion

All equipment and the survey method of each vessel were the same as in the past sighting surveys. The design of the survey strata and track lines were improved to cover each strata completely. The planned sighting procedure was in accordance with the guideline agreed by the SC (IWC, 2005). Objectives and procedure of the survey were explained to the captains, officers, crew and researcher in advance. I then endorse the information and data obtained during the 2014 Japanese dedicated sighting survey in the western North Pacific.

Reference

- IWC. 2005. Report of the Scientific Committee. Annex D. Report of the sub-committee on the Revised Management Procedure. Appendix 3. Requirements and Guidelines for Conducting Surveys and Analysing Data within the Revised Management Scheme. *J. Cetacean Res. Manage. (Suppl.)* 7:92-101.
- IWC. 2014. Report of the Scientific Committee. Annex G. 27pp. Bled, Slovenia, 2014. [Paper available at the IWC Office].
- Matsuoka, K., Hakamada, T. and Miyashita, T., 2014. Research plan for a cetacean sighting surveys in the Western North Pacific in 2014. SC/65b/IA07. 3pp. [Paper available at the IWC Office].