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2019

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Research plan of the cetacean sighting survey in the western Sea of Okhotsk in 2019

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ABSTRACT

Using a Russian research vessel, *ВЛАДИМИР САФОНОВ (VLADIMIR SAFONOV)*, a dedicated systematic cetacean sighting survey will be conducted in the western part of the Sea of Okhotsk in 2019. The vessel is a stern trawl type research vessel with a barrel for observation. The objective of the survey is to obtain information on distribution and abundance of large whales using the normal closing mode. The period of survey will be from 3 August to 6 September (35 days), and the research area is the eastern coastal waters off the Sakhalin island. During the transit to the research area, the vessel will conduct the sighting survey in passing mode. The distance and angle estimation training and experiment will be conducted during the survey. Photo-identification of cetaceans such as northern right whales, gray whales and humpback whales will be also be attempted. When a peeled skin is found after breaching, the vessel will try to collect as DNA sample using a landing net.

KEY WORD: SIGHTING SURVEY, SEA OF OKHOTSK

INTRODUCTION

The first sighting survey by the Russian research vessel was conducted in 2015 (Myasnikov *et al.*, 2016). The survey included a feasibility study in the central Okhotsk Sea and covered the northern most coastal waters. Consequently, most north-eastern area (Sherikov Bay) was covered by the vessel in 2016 (Gushchero *et al.* 2017). In 2017, west of the Kamchatka Peninsula (i.e. eastern part of the Sea of Okhotsk) was covered by the vessel (Gushchero *et al.* 2018) and in 2018 the vessel covered the north-western waters including the Shantar Islands (Gushchero *et al.*, 2019. This paper presents outline of the survey plan in 2019.

RESEARCH PLAN

Research vessel

As in the cases of 2015 and 2018 surveys, the Russian research vessel, *ВЛАДИМИР САФОНОВ (VLADIMIR SAFONOV)* belonging to VNIRO, will be used in the survey. The vessel is equipped with a barrel (15 m from the sea level) where two observers can be allocated. Scientists are allocated to the upper bridge (10 m from the sea level) where they record sighting, effort and weather. scientists can also observe and record the sighting information. A total of 23 crews is onboard the vessel. Specification of the vessel is shown in Table 1.

Research schedule

The total cruise period will be 35 days. A tentative cruise itinerary is as follows;

1 Aug.	Pre-cruise meeting in Vladivostok
3 Aug.	Vessel departs from Vladivostok
8 Aug.	Vessel arrives at the start way point on 57°N line
1 Sep.	Vessel arrives at the final way point on 50°N line and leaves the research area
6 Sep.	Vessel arrives at Vladivostok and finishes the cruise
Around 15 Oct.	Post-cruise meeting in Vladivostok

Scientists on board

Five scientists from Russia will participate in the cruise. All scientists have experiences in the marine mammal surveys.

1. Pavel S. Gushcherov (Cruise leader, Pacific branch of VNIRO (TINRO), 3 Aug – 6 Sept.))
2. Petr A. Tiupelev (Pacific branch of VNIRO (TINRO), 3 Aug – 6 Sept.))
3. Igor A. Naberezhnykh (Pacific branch of VNIRO (TINRO), 3 Aug – 6 Sept.))
4. Specialist
5. Specialist

Oversight from the SC

The authors request to the IWC/SC to nominate Tomio Miyashita as an oversight. He will participate both pre-cruise and post-cruise meetings, and during the survey he will monitor the activities of the vessel based on the detailed daily report from the cruise leader.

Research area and track line

The research area is set in the western Sea of Okhotsk east of the Sakhalin Island including the Russian territorial waters (Figure 1). The northern and the southern boundaries are 57°N and 50°N, respectively. And the eastern and the western boundaries are 147°E and 142°42'E (tip of the Sakhalin Islands). The pre-determined track line was set from the random selected start point using Distance 6.2 Release 1 (Thomas *et al.* 2010) and shown in Figure 2. Positions of way points and distance between way points are shown in Table 2. Planned survey distance is 1,560 n.miles in the research area and expected to be covered in 26 days. The days for transit is assumed to be 9 days.

Sighting activity

Normal closing mode is primarily used in the research area. Two observers conduct searching using binocular and naked eye. Three observer teams with determined members operate in two hours shifts. The survey is to be conducted for a maximum of 14 hours (from 6 a.m. to 20 p.m. at local time) basically when the weather conditions are suitable for observations: visibility better than 1.5 n.miles and the wind speed less than 7.5m/s. The vessel speed is planned to be 9.5 knots with adjustment to avoid vibration of vessel.

Sighting information is recorded by the researcher on the upper bridge. Weather and effort information is also recorded by the researcher on the upper bridge. The data will be entered to the computer on board during the survey.

Experiments

Distance and angle measurement training is planned to be conducted at the earlier part of the survey. The experiment to evaluate the measurement error is to be conducted around the middle of the survey.

When gray, northern right. humpback and killer whales are found, attempts will be made to take photograph for the individual photo-identification.

When peeled skin is found after breaching, the vessel will try to collect as DNA sample using a landing net.

Cruise report

The cruise result will be examined in the post-cruise meeting in October 2019. The cruise report will be submitted to the 68b IWC Scientific Committee in 2020.

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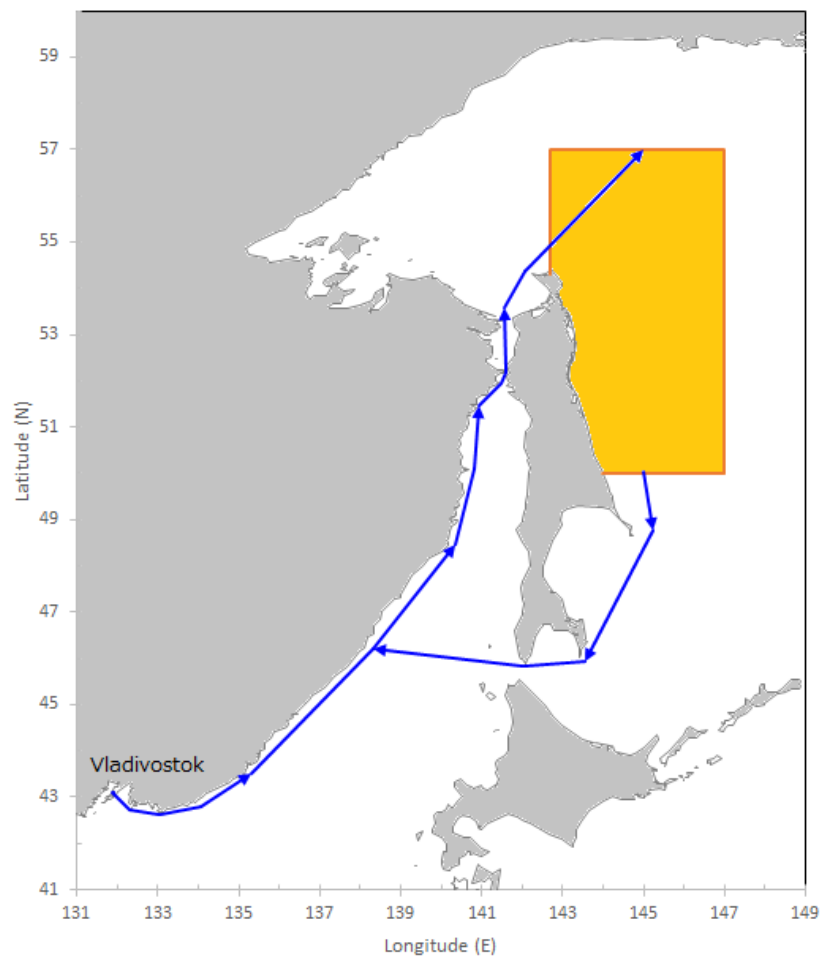


Figure 1. Research area and transit route for *ВЛАДИМИР САФОНОВ* (VLADIMIR SAFONOV) in the 2019 Okhotsk cetacean sighting survey. Yellow area shows the research area, blue line shows the transit route.

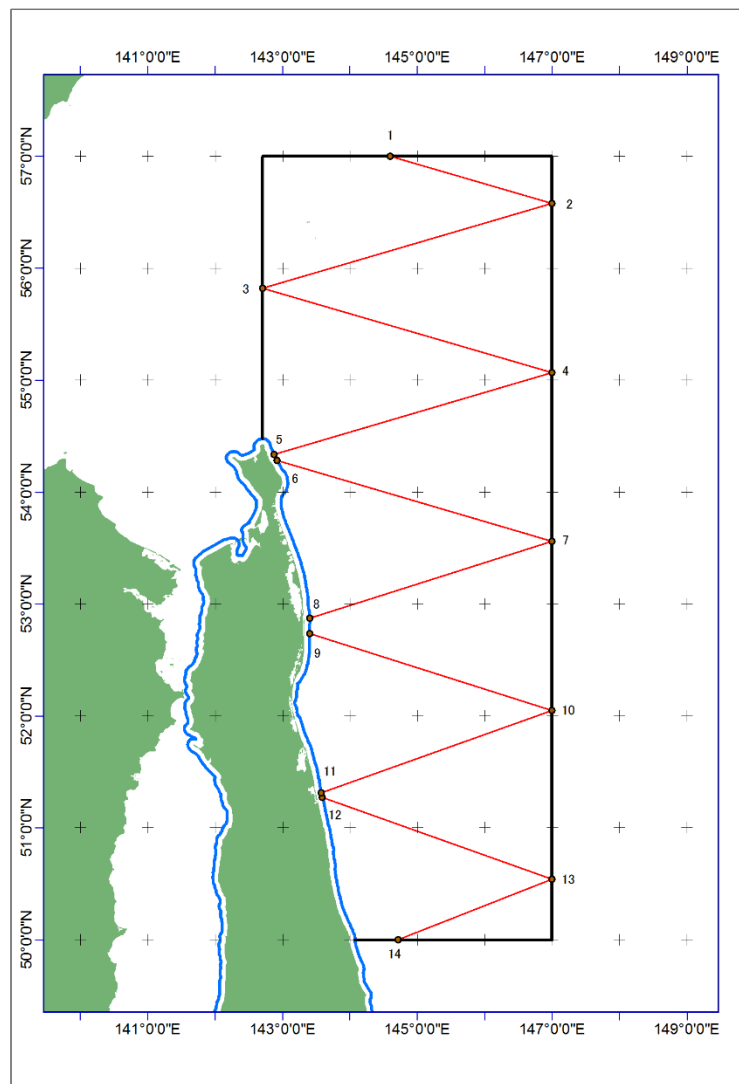


Figure 2. Pre-determined track line and waypoints for or *ВЛАДИМИР САФОНОВ (VLADIMIR SAFONOV)* in the 2019 Okhotsk cetacean sighting survey.
 Red line: pre-determined track line, thick black line: border of research area, blue line: 3 n.miles off the coast.

Table 1. Specification of the research vessel *ВЛАДИМИР САФОНОВ* (VLADIMIR SAFONOV)

Length overall [m]	48.12
Molded breadth [m]	10.50
Gross tonnage (GT)	462.0
Barrel height [m]	15.0
Upper bridge height [m]	12.0
Engine power [kW]	970

Table 2. Track line, way points and distance for the 2019 sighting survey.

Track line	WP	From				To					Distacne (n.miles)
		Lat.(deg)	Lat.(min)	Long.(deg)	Long.(min)	WP	Lat.(deg)	Lat.(min)	Long.(deg)	Long.(min)	
1	1	57	0.00	144	35.68	2	56	34.66	147	0.00	112.7
2	2	56	34.66	147	0.00	3	55	49.37	142	42.00	177.5
3	3	55	49.37	142	42.00	4	55	4.07	147	0.00	169.9
4	4	55	4.07	147	0.00	5	54	20.20	142	52.08	181.1
5	6	54	16.88	142	54.72	7	53	33.48	147	0.00	184.9
6	7	53	33.48	147	0.00	8	52	52.33	143	24.14	156.0
7	9	52	44.08	143	23.94	10	52	2.89	147	0.00	146.6
8	10	52	2.89	147	0.00	11	51	18.58	143	34.40	158.7
9	12	51	16.41	143	35.29	13	50	32.30	147	0.00	161.6
10	13	50	32.30	147	0.00	14	50	0.00	144	42.59	113.3
Total											1,562.3