

HISTORICAL JAPANESE WHALE SIGHTING SURVEYS IN THE CHUKCHI SEA

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Abstract

Before the *T/S Oshoro Maru* surveys in 2007 and 2008, three Japanese research vessels had conducted whale sighting surveys in the Chukchi Sea, in 1937 (*R/V Kaihou Maru* and *Yūki Maru*) and 1958 (*R/V Fumi Maru No.16*). However, their results are not well-known. The author found four references about these voyages and compared the results with *T/S Oshoro Maru* data from the 2007 and 2008 voyages. Despite the long period separating these surveys (about 20 years and then 50 years), the whale distributions in this region were somewhat similar.

Key words: Chukchi Sea, Japanese whale sighting survey, large whale species.

Despite its biological importance, the Chukchi Sea is one of the least surveyed regions. This region is closed down for a long period by winter ice, and often covered by deep fog during summer. However, at least three Japanese research vessels managed to conduct oceanographic and biological surveys in the Chukchi Sea, including shipboard cetacean sighting surveys. *R/V Kaihou Maru* (the Ministry of Agriculture and Forestry, 1064 gross tonnage) and *Yūki Maru* (Hokuyou-Hokei Co., 350 gross tonnage) carried out surveys from the end of July to the beginning of August, 1937, and the *R/V Fumi Maru No.16* (Taiyo Fisheries Co., 598 gross tonnage) survey was conducted in the summer of 1958. This author found four cruise reports in Japanese about these cruises (Nasu, 1960a, 1960b; Yamaguchi, 1961; Tatou, 1985). The cruise report of *R/V Yūki Maru* has not been found, and thus its data were extracted from Nasu (1960a) and Tatou (1985). The author had an opportunity to conduct cetacean sighting surveys in the Chukchi Sea from *T/S Oshoro Maru* (Hokkaido University, Japan; 72.8m length and 1,779 gross tonnage) as a part of the International Polar Year (IPY) special research in summer 2007 and 2008. It seems that these historical cruises did not have systematically organized track lines in the way our *Oshoro Maru* cruises did; however, their data are very important for describing the distribution of whales in this region in the past. In this Short Note, the author would like to compare sighting results among those historical cruises and the *T/S Oshoro Maru* cruises, in order to investigate any change in whale occurrence in the Chukchi Sea.

R/V Kaihou Maru and *Yūki Maru* survey in summer 1936

The *R/V Kaihou Maru* entered the Chukchi Sea on 26 July, 1937 and reached the furthest north point (71°12'N, 174°50'W) by a Japanese vessel in 29 July. The vessel continued its survey westward along the ice edge and then on 1st August headed back along the Russian coast line. Their survey covered the entire western part of the Chukchi Sea (Fig. 1) and Table 1 shows the summary of their cetacean sightings extracted from Yamaguchi (1961). Six species of large whales were sighted: blue whale *Balaenoptera musculus*, fin whale *B. physalus*, humpback whale *Megaptera novaeangliae*, right whale *Eubalaena japonica*, minke whale *B. acutorostrata* and sperm whale *Physeter macrocephalus*.

On the other hand, the *R/V Yūki Maru* sailed along the entire coast line of the Chukchi Sea in about the same period (26 July to 3 August, 1937) (Fig. 2, from Nasu, 1960a). The main purpose of the *R/V Yūki Maru* voyage was the investigation of possible new whaling grounds and thus it is presumed that the vessel had professional observers. Unfortunately, no detailed data could be found for this *Yūki*

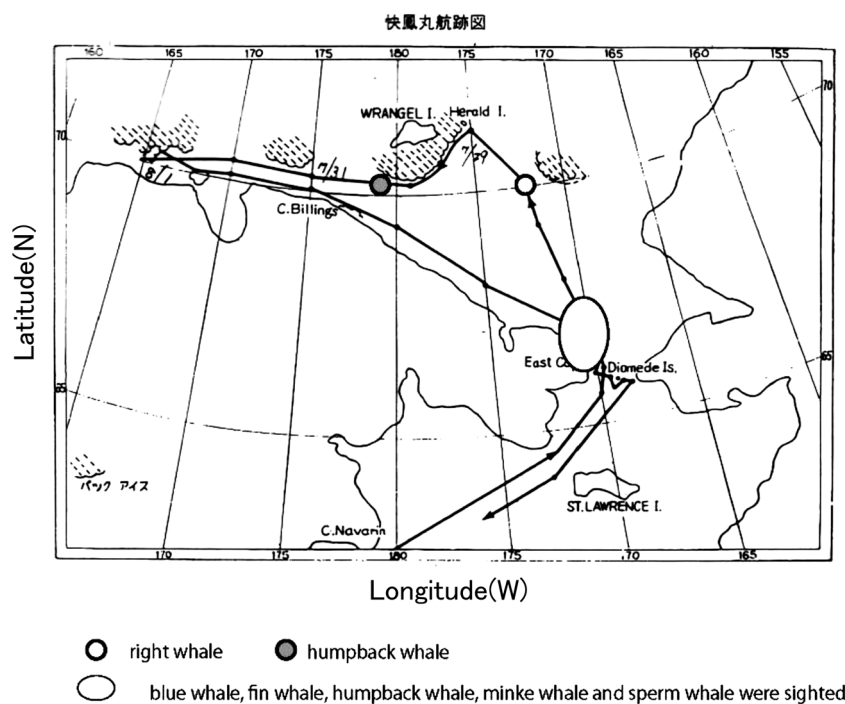


Fig. 1. The track line and whale sighting locations of *R/V Kaihou Maru* in summer 1937 (the figure was converted from Fig. 2 in Yamaguchi, 1961). Sighting location data are from Table 1.

Table 1. Sighting summary for *R/V Kaihou Maru* survey in summer 1937. Data were extracted from Table 1 in Tatou (1985).

Sighting location	Species					
	Blue whale	Fin whale	Humpback whale	Sperm whale	Right whale	Minke whale
66°36'N, 169°43'W		15–16				
66°42'N, 169°49'W						1
67°20'N, 170°08'W			11			
70°00'N, 173°05'W					1	
69°50'N, 179°50'W			6			
67°05'N, 171°05'W	15–16					
67°00'N, 170°55'W		8				
66°50'N, 170°35'W		about 200				
66°42'N, 170°35'W	11	about 100		50		
66°38'N, 170°15'W			about 100			
66°25'N, 169°52'W			2			

Maru survey (Table 2), but Nasu (1960b) described that “many” fin whales were sighted near the coast of Siberia (66°40'N, 170°W), at least one humpback whale, and a rather unusual sighting of a right whale and a sperm whale.

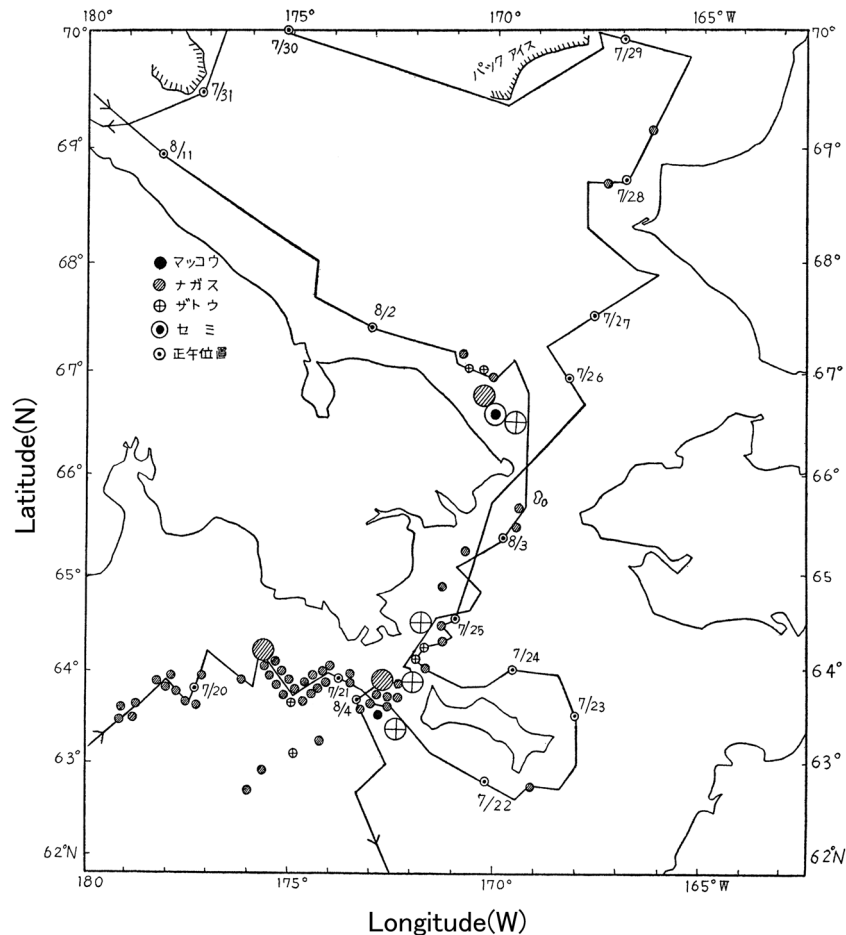


Fig. 2. The track line and sighting positions by *R/V Yūki Maru* in 1937 summer (from Fig. 5 in Nasu, 1960a). Symbols explanation: sperm whale (closed circle); fin whale (hatched circle); humpback whale (crossed circle); right whale (circle with a big black dot). Circles with a small dot indicate vessel position at noon.

Table 2. Sighting summary from *R/V Yūki Maru* during the 1937 summer cruise, based on data from Nasu, 1960a and Tatou, 1985.

Species	Total no. of animals	Approximate sighting location
Fin whale	“many”	66°40'N, 170°W
Humpback whale	1?	66°40'N, 170°W
Right whale	1?	66°30'N, 170°W
Sperm whale	?	66°30'N, 170°W

***R/V Fumi Maru No.16* survey in summer 1958**

The *R/V Fumi Maru No.16* surveyed the Chukchi Sea between 16 and 20 August 1958. Fig. 3 shows the track line and Fig. 4 indicates whale sighting locations (figures from Nasu, 1960a). A total of 86 animals were sighted. Most were gray whales *Eschrichtius robustus* (82 animals), but there were also two right whales, one fin whale, and one unidentified whale (Table 3; data from Nasu, 1960a).

***T/S Oshoro Maru* survey in summer 2007 and 2008**

The *T/S Oshoro Maru* conducted two IPY oceanographic and biological research cruises in the Chukchi Sea. In 2007, the survey started from 5 August and ended on 15 August at Nome, AK. In 2008, the cruise schedule was a month earlier, starting from Nome on 6 July and ending at Dutch Harbor, AK on 17 August. Details of course lines and oceanographic observations are available in data

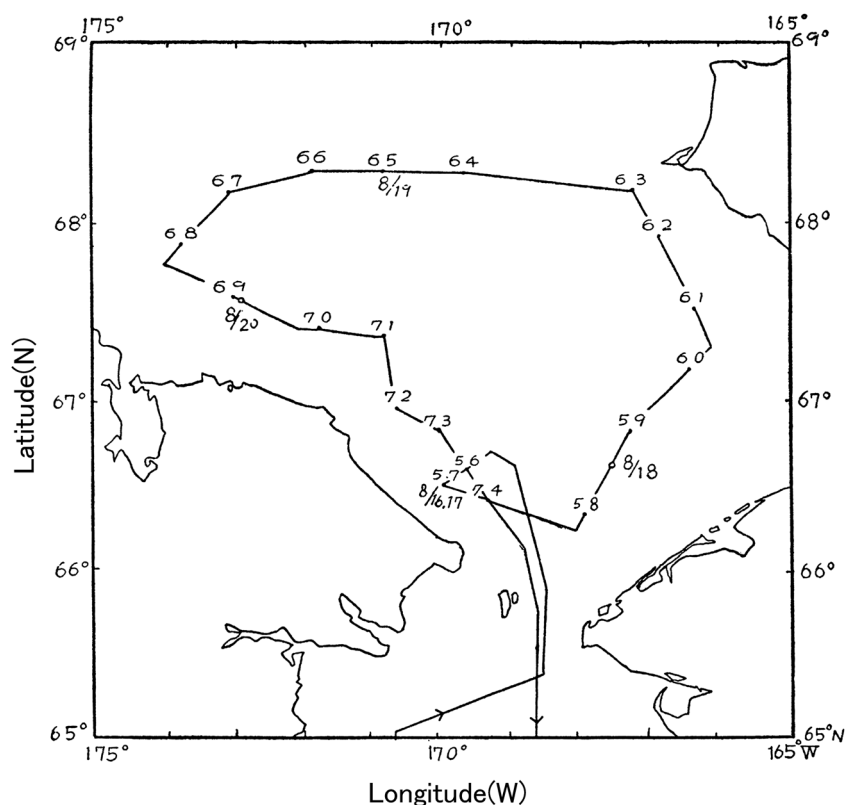


Fig. 3. The track line of *R/V Fumi Maru No. 16* survey in summer 1958 (from Fig. 1 in Nasu, 1960a).

books from Hokkaido University (Faculty of Fisheries Sciences, Graduate School of Fisheries Sciences, School of Fisheries Sciences, Hokkaido University 2008, 2009). Table 4 summarizes sighting results in the Chukchi Sea and Fig. 5 shows track lines and cetacean sighting positions. A total of six cetacean species were identified: bowhead whale *Balaena mysticetus* (30 animals in 2007), humpback whale (three in 2007 and one in 2008), minke whale (three in 2007 and nine in 2008), gray whale (212 in 2007 and 16 in 2008), killer whale *Orcinus orca* (five in 2007) and harbor porpoise *Phocoena phocoena* (one in 2007 and six in 2008).

These five relevant cetacean surveys were done a long time apart (about 20 years, then 50 years respectively); however, sighting locations are rather similar, the main locations being just after the Bering Strait and off Point Hope. Russian–American aerial and shipboard surveys between 1968 and 1982 also indicated gray whale aggregations just after the Bering Strait (Berzin, 1984). It seems these large whale species utilized the Chukchi Sea region as their summer feeding area, well before the area was widely freed from ice because of “global warming”.

Table 5 summarizes the presence/absence of large whale species sighted in the Chukchi Sea survey areas by the five cruises. Only *R/V Kaihou Maru* sighted six species of large whales, blue, fin, humpback, right, minke and sperm whales, but not gray whales, in the Chukchi Sea surveyed area (also see Table 1). Nasu (1960a) assumed poor sightings from *R/V Fumi Maru No. 16* were caused by bad visibility (dense fog) and the whale migration period. The second year (2008) of the *T/S Oshoro Maru* Chukchi Sea survey also encountered very poor visibility condition and thus the total sighting was much less than in the previous year (Table 4). Poor visibility for the *R/V Fumi Maru No. 16* survey might have caused a lack of humpback whale sightings as well. Humpback whales were sighted in large numbers (about 120? animals in total, Table 1) by *R/V Kaihou Maru*, at least one animal by *R/V Yūki Maru* (Table 2) and one school in each of the *T/S Oshoro Maru* 2007 and 2008 surveys (Table 4).

Although no fin whales were sighted by the *T/S Oshoro Maru* 2007 and 2008 surveys, animals were sighted in the three surveys in 1936 and 1958 (Tables 1, 2, 3 and 5; Figs. 1, 2, and 4). Fin whales were

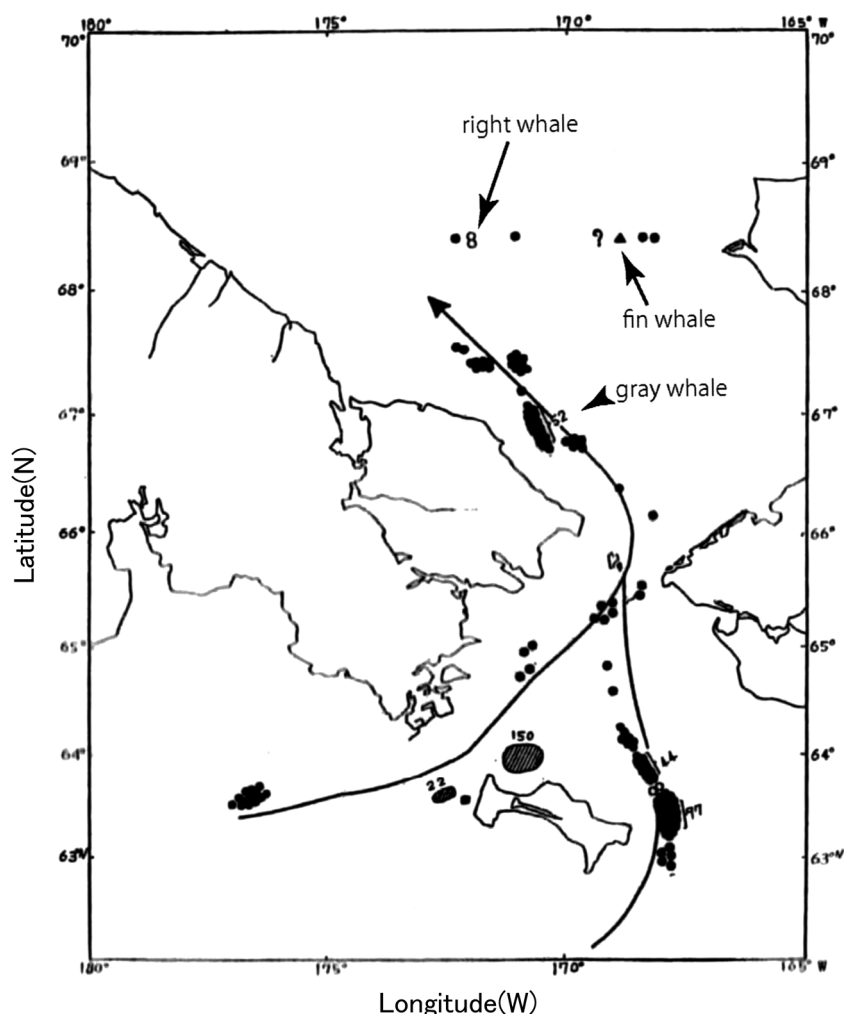


Fig. 4. Whale sighting positions during the *R/V Fumi Maru No.16* survey in summer 1958 (from Fig. 4 in Nasu, 1960a).

Table 3. Sighting summary from *R/V Fumi Maru No. 16* during the 1958 summer cruise, based on data from Nasu, 1960a and Tatou, 1985.

Species	Total no. of animals	Approximate sighting location
Fin whale	1	50 nm off Point Hope
Right whale	2	off Point Hope?
Gray whale	78	67°N, 170°W
	2	off Point Hope
	2	?
UnID whale	1	?

sighted off the Bering Strait and Point Hope, and even at the far north ice edge (66°36'N, 169°43'W; Table 1; Fig. 1). Fin whales were often sighted in the Bering Sea during the *T/S Oshoro Maru* 10-year cruises (a total of 399 fin whales in 174 groups, Table 1 in Sekiguchi, 2015). Before the North Pacific fin whaling ban in 1976, the fin whale summer geographical distribution might have extended further into the Chukchi Sea. Berzin and Rovnin (1966) and Tomilin (1967) also noted the occurrence of fin whales in the Chukchi summer.

Sightings of right whales by *R/V Kaihou Maru*, *Yūki Maru* and *Fumi Maru No.16* were rather unusual. Tomilin (1967) reported the record at Cape Prince of Wales and the possible further north distri-

Table 4. Sighting summary from the *T/S Oshoro Maru* IPY surveys in summer 2007 and 2008.

Species	2007		2008	
	Total numbers of		Total numbers of	
	School	Individuals	School	Individuals
Bowhead whale	1	30	0	0
Humpback and like-humpback whale	1	3	1	1
Minke and like-minke whale	2	3	6	9
Gray and like-gray whale	12	212	5	16
Killer whale	1	5	0	0
Harbor porpoise	1	1	3	6
UnID large baleen whale	9	35	2	2
UnID large whale	1	2	1	1
UnID small whale	2	2	2	2
UnID whale	1	2	5	5
UnID dolphin	1	1	0	0
Dead whale	1	1	1	1
Total	33	297	26	43

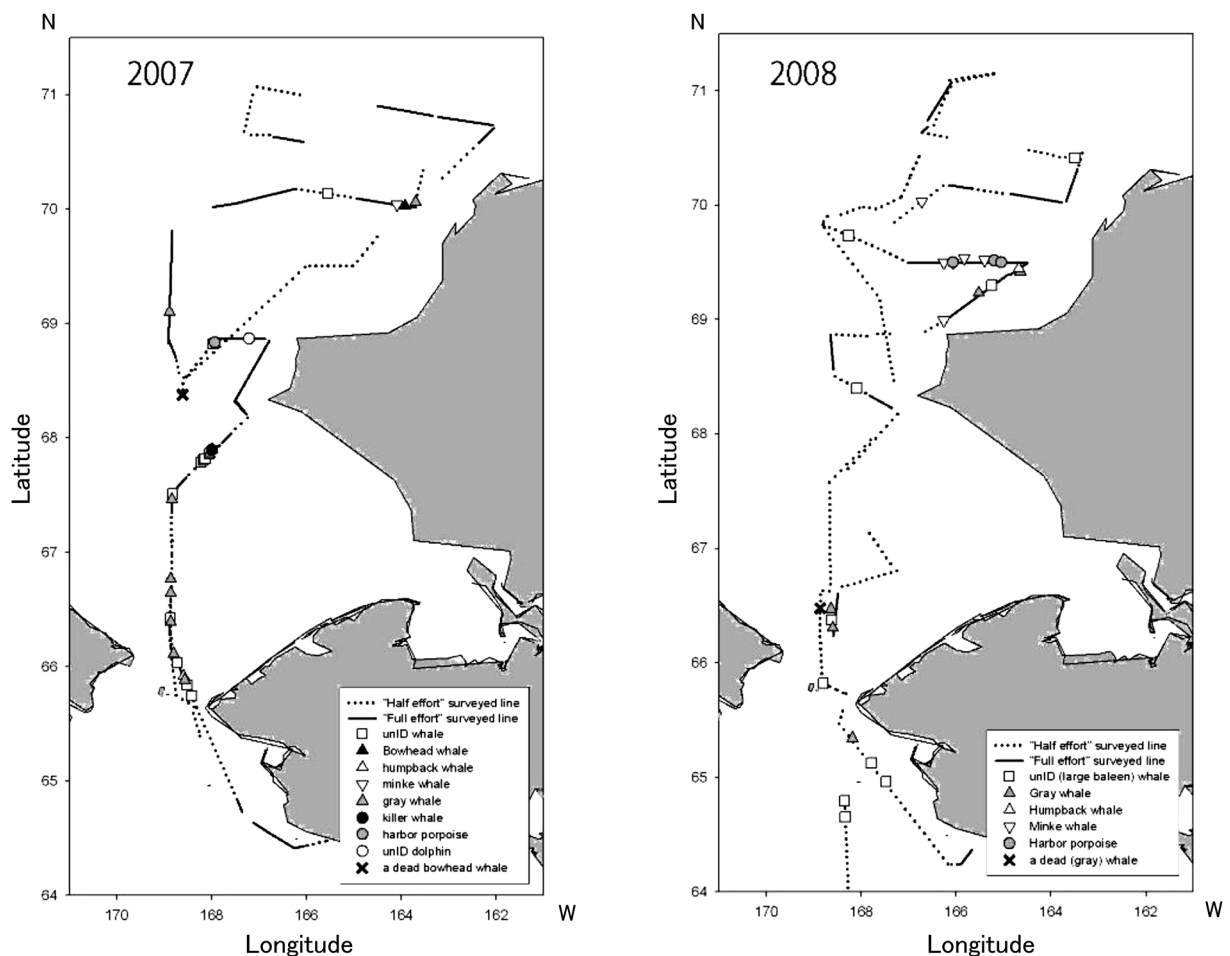
**Fig. 5.** Cetacean sighting positions by the *T/S Oshoro Maru* in summer 2007 and 2008.

Table 5. The summary of sighted whale species for each survey in the Chukchi Sea (present (✓) or absent (abs)).

Survey year	1937	1937	1958	2007	2008
Research vessel	<i>Kaihou Maru</i>	<i>Yūki Maru</i>	<i>Fumi Maru</i>	<i>Oshoro Maru</i>	<i>Oshoro Maru</i>
Bowhead/NP right whale	✓	✓	✓	✓	abs.
Blue whale	✓	abs.	abs.	abs.	abs.
Fin whale	✓	✓	✓	abs.	abs.
Humpback whale	✓	✓	abs.	✓	✓
Minke whale	✓	abs.	abs.	✓	✓
Gray whale	abs.	abs.	✓	✓	✓
Sperm whale	✓	✓	abs.	abs.	abs.

bution, but at present no other record of right whales in the Chukchi Sea has been found. The *T/S Oshoro Maru* 2007 survey encountered a school of bowhead whales off Point Hope, where *R/V Kaihou Maru* and *Fumi Maru No.16* sighted right whales. It is possible that they might have mistaken right whales for bowhead whales.

Gray whales have been known to be abundant in the Chukchi Sea for years (Nikulin, 1946; Berzin and Rovnin, 1966; Tomilin, 1967; Berzin, 1984; Sekiguchi, 2015), however, no sightings were reported from the 1937 cruises (Table 5). This might be related to the migration period of gray whales, since their cruise period was a bit earlier than those of the *R/V Fumi Maru* and *T/S Oshoro Maru*.

The two 1937 cruises had sightings of sperm whales (Tables 1, 2, and 5). There is no official record of sperm whales in the Chukchi Sea, although Berzin and Rovnin (1966) wrote about sighting reports of this species. Sperm whale sightings could be due to a misidentification, but it is hard to believe whaling professionals made such a mistake for sperm whales. If there is an original cruise report for the *R/V Yūki Maru* voyage, it may provide the answer.

To conclude, these old Japanese whale sighting survey data are important for investigating the change in whale distribution in the Chukchi Sea over the years. It is necessary to look for the detailed sighting data for the *R/V Yūki Maru*, which are missing from this study.

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References

- Berzin, A. A. 1984. Soviet studies on the distribution and numbers of the gray whales in the Bering and Chukchi Seas from 1968 to 1982. pp. 409–419. In: Jones, M. L., Swartz, S. and Leatherwood, S. (eds.). *The Gray Whale: Eschrichtius Robustus*. Academic Press, Inc., San Diego. 600 pp.
- Berzin, A.A. and Rovnin, A.A. 1966. The distribution and migrations of whales in the northeastern part of the Pacific, Chukchi and Bering Seas. *Izv. TINRO* 58: 179–207.
- Faculty of Fisheries Sciences, Graduate School of Fisheries Sciences, School of Fisheries Sciences, Hokkaido University. 2008. Data Record of Oceanographic Observations and Exploratory Fishing. No. 51. Hokkaido University, Hakodate. 218 pp.
- Faculty of Fisheries Sciences, Graduate School of Fisheries Sciences, School of Fisheries Sciences, Hokkaido University. 2009. Data Record of Oceanographic Observations and Exploratory Fishing. No. 52. Hokkaido University, Hakodate. 235 pp. Available here: <http://hdl.handle.net/2115/76719>. (In Japanese).

- Nasu, K. 1960a. Hoppyouyou no chousa (Surveys in the North Sea). *Geiken Tsuushin* 104: 75–84. (In Japanese).
- Nasu, K. 1960b. Oceanographic investigation in the Chukchi Sea during the summer of 1958. *Sci. Rep. Whales Res. Inst.* 15: 143–158.
- Nikulin, P.G. 1946. On the distribution of cetaceans in the seas adjacent to the Chukchi Peninsula. *Izv. TINRO* 22.
- Sekiguchi, K. 2015. Whales in the northern oceans—10-year surveys by *T/S Oshoro Maru*. pp. 163–179. In: Murayama, T., Suzuki, M. and Yoshioka, M. (eds.). *The Second Dolphin and Whale Studies*. Tokai University Press, Hatano. 201 pp. (In Japanese).
- Tatou, S. 1985. Chapter 3. Surveys and Data. pp. 108–117. In: Tatou, S. (ed.) *Hogei no Rekishi to Shiryo (History and Statistics of Whaling)*. Suisansha, Tokyo. 202 pp. (In Japanese).
- Tomilin, A.G. 1967. Mammals of the USSR and Adjacent Countries. Vol. IX. Cetacea. Israel Program for Scientific Translation, Jerusalem. 717 pp.
- Yamaguchi, Y. 1961. Kaihou Maru ni yoru hoppyouyou chousa (The North Sea survey by *R/V Kaihou Maru*). *Geiken Tsushin* 123: 209–212. (In Japanese).

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