

Fedoseev, G. A. 1981. Aerovisual survey of walruses and bowhead whales in the eastern Arctic and Bering Sea. pp. 25-37. In Popov, L. A. (ed.) Scientific Investigational Work on Marine Mammals in the Northern Part of the Pacific Ocean in 1980-81. All-Union Scientific Investigational Institute of Marine Fisheries and Oceanography (VNIRO), Moscow.
(Transl. by F. H. Fay, 1982)

The Soviet aerial survey of walruses was carried out from 18 September to 21 October 1980. In addition to a census of the Pacific walrus population, a survey was conducted of the walrus population in the Laptev Sea and of bowhead whales in the Chukchi Sea.

As in previous years, the survey of walruses lying on the ice was done visually along transects. The flight altitude was 200 m, and the width of each transect was 1 km (500 m on each side). The general characteristics of distribution of the animals were recorded by noting also those sighted outside the 1-km-wide survey transect. For determination of the density of walruses hauled out on the ice, however, only those animals which were within the transect were included in the computation. Observation was done simultaneously by two observers and, in the majority of cases, by the pilot, co-pilot, and other members of the crew, as well. The total extent of the transects amounted to 37,440 km.

The work was conducted by G. A. Fedoseev and E. V. Razlivalov (Magadan Section of TINRO), as well as by the crew of the aircraft.

Walruses of the Laptev Sea

The literature on distribution of walruses in the Laptev Sea is very limited and represents mainly incidental observations by polar explorers,

overwintering meteorologists, and hydrologists on ice surveys.

In a few cases, these observations were summarized by the same investigators (Koshkin, 1940, 1940a; Zakharov, 1958); in others, they were summarized by zoologists (Chapskii, 1940; Vinogradov, 1949; Uspenskii, 1958, 1963; Tavrovskii, 1971).

A special study of walruses in the Laptev Sea was carried out during exploratory cruises of sealing vessels in 1953-54 by L. A. Popov (1959, 1960), to the east of the Taimyr.

As a whole, the available information gives a representative view of the distribution of walruses in the Laptev Sea; it also provides some data on the their numbers.

The aerovisual search for walruses was begun on 20 September along a transect from Dickson Island to Cape Chelyuskin, then to Cape Kasisty (Khatanga Bay). Walruses were not found along the western coast of Taimyr. The first solitary animals were found at Komsomol Pravda and Faddei Islands. Bad weather did not permit careful examination of the ice about those islands. In the vicinity of the Petra Islands, however, were four small groups of animals on the ice (3,5,4, and 2, individuals). Periodically, walruses were met in ice massifs along the eastern Taimyr. There, on 21 September, a detailed survey was conducted of the region, and on 5 transects extending a total of 508 km, 88 animals were counted.

Data from the survey are shown in Figure 5. Off the eastern coast of Taimyr, walruses lay in four areas on the ice and in two haulouts on Peschan Island (200 and 400 head).

The second area surveyed extended from Khatanga Bay to the mouth of the Lena River. Although walruses were not found there, herds of these animals have been recorded in other years on haulouts at Dunai and Cuba Islands

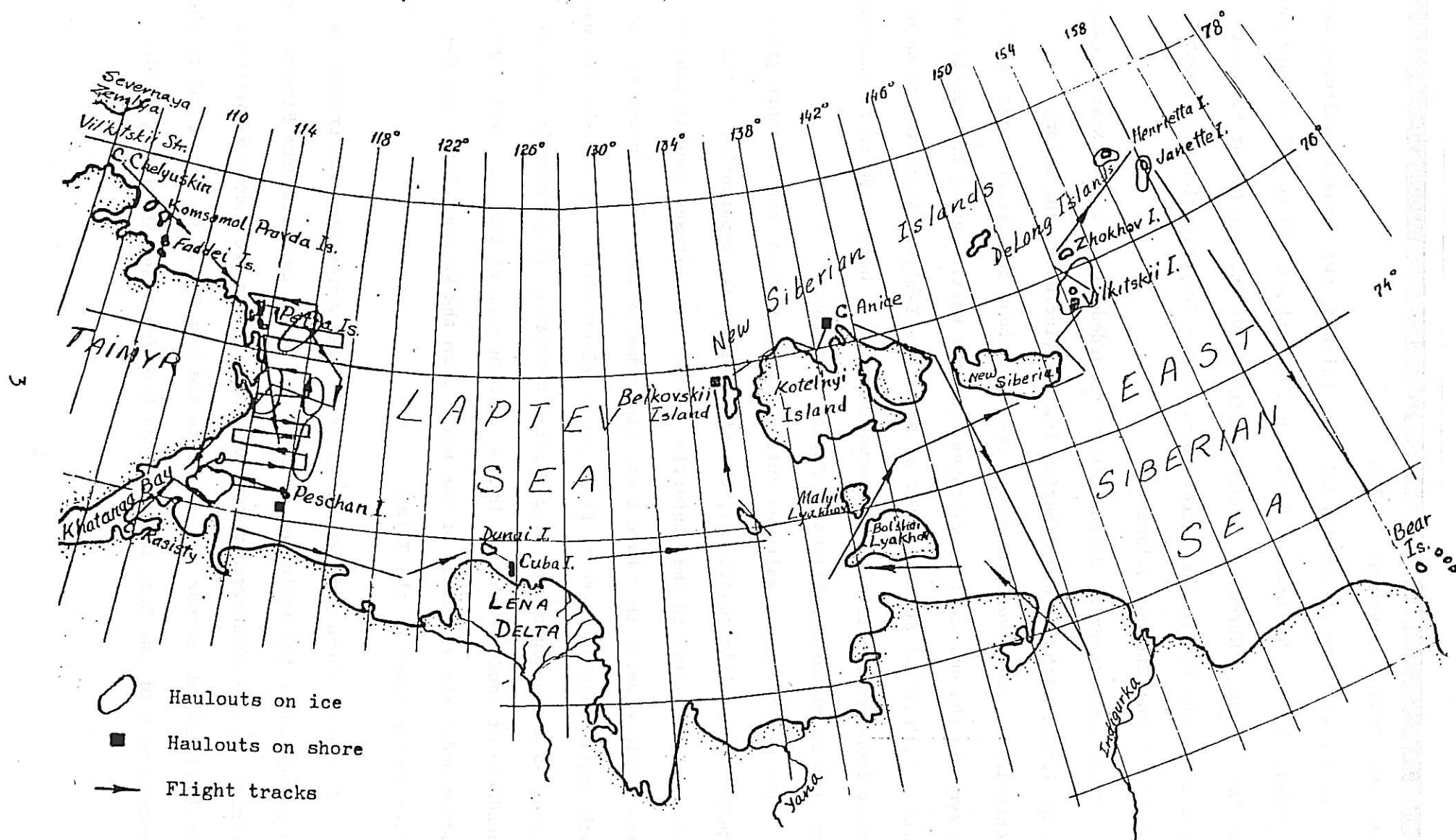


FIGURE 5. Distribution of walruses in the Laptev Sea.

(Belousov, 1952; Tavrovskii, 1976).

In the vicinity of the New Siberian islands, two herds of walruses were recorded: 150 to 200 head on Bel'kovskii Island and 350 to 400 on Cape Anice, Kotel'nyi Island. Moreover, a small quantity of animals (about 600 head) was recorded on the ice in the western part of the East Siberian Sea, about Vil'kitskii and Zhokhov Islands.

Thus, two groups of walruses were recorded in the Laptev Sea: an eastern group, linked with the New Siberian Islands (including the DeLong Archipelago), and a western group, residing about the eastern coast of the Taimyr. In the summertime, walruses from the western group apparently can go through Vil'kitskii Strait as far as Severnaya Zemlya. According to an oral report from hydrologists on ice reconnaissance, a herd of 50 to 70 walruses was sighted on Voronin Island in August-September.

The separation of walruses into eastern, western, and southern groups depends on specific conditions, the first of which, apparently, is the hydrological regime in the wintertime. That is, walruses tend to stay in those regions where they have a constant zone of thin ice. In autumn-winter, each small group of walruses finds such a place with adjacent shallow water, where, as a consequence of concentrated nutrients, they probably have an abundance of food (benthos). In the western part of the sea, such a zone is formed under the influence of the water from the Khatanga River and the southeastern coast of the Taimyr.

In the southern and eastern parts of the Laptev Sea, the productive zone is formed under the influence of the Lena, Yana, and Indigurka Rivers. In particular, the discharged waters of these rivers are recorded northward to Kotel'nyi Island, across the strait to the New Siberians Island and to the western part of the East Siberian Sea (Nikiforov and Shpaikher, 1980).

The Pacific Population of Walruses

The Pacific walrus in summertime migrates from the Bering to the Chukchi Sea. During that migration, part of the walruses go northeastward, along the coast of Alaska as far as the Beaufort Sea (Point Barrow); the other part goes northwestward to Wrangel Island and the eastern part of the East Siberian Sea (Belopol'skii, 1939).

For such a distribution, a complete census of the walruses can be conducted only if there is synchronous inspection of areas in both the Soviet and American zones.

In this connection, the earlier aerial censuses of the Pacific walrus conducted by Fedoseev (1962) and Gol'tsev (1970) apparently did not take into account all of the animals, since the American zone was not surveyed.

The first complete survey of the range of the walrus from aircraft, with collaboration of Soviet and American zoologist was carried out in 1975 (Gol' tsev and Estes, 1975).

In 1980 an aerial census of the Pacific walrus was conducted from 25 September to 17 October. During that period, a three stage census was carried out of all areas inhabited by these animals in the Chukchi and Bering Seas, excluding the area to the east of the national boundary between the USSR and USA, where a census was conducted by American scientists. The results of the work are presented in Tables 5 and 6, and in Figures 6 and 7.

As shown in Fig. 6, walruses in the Chukchi Sea and in the eastern part of the East Siberian Sea resided in massifs of ice to the west and south of Wrangel Island. To the north and east of the island, walruses were not found, with the exception of small group (50-70 head) near Herald Island.

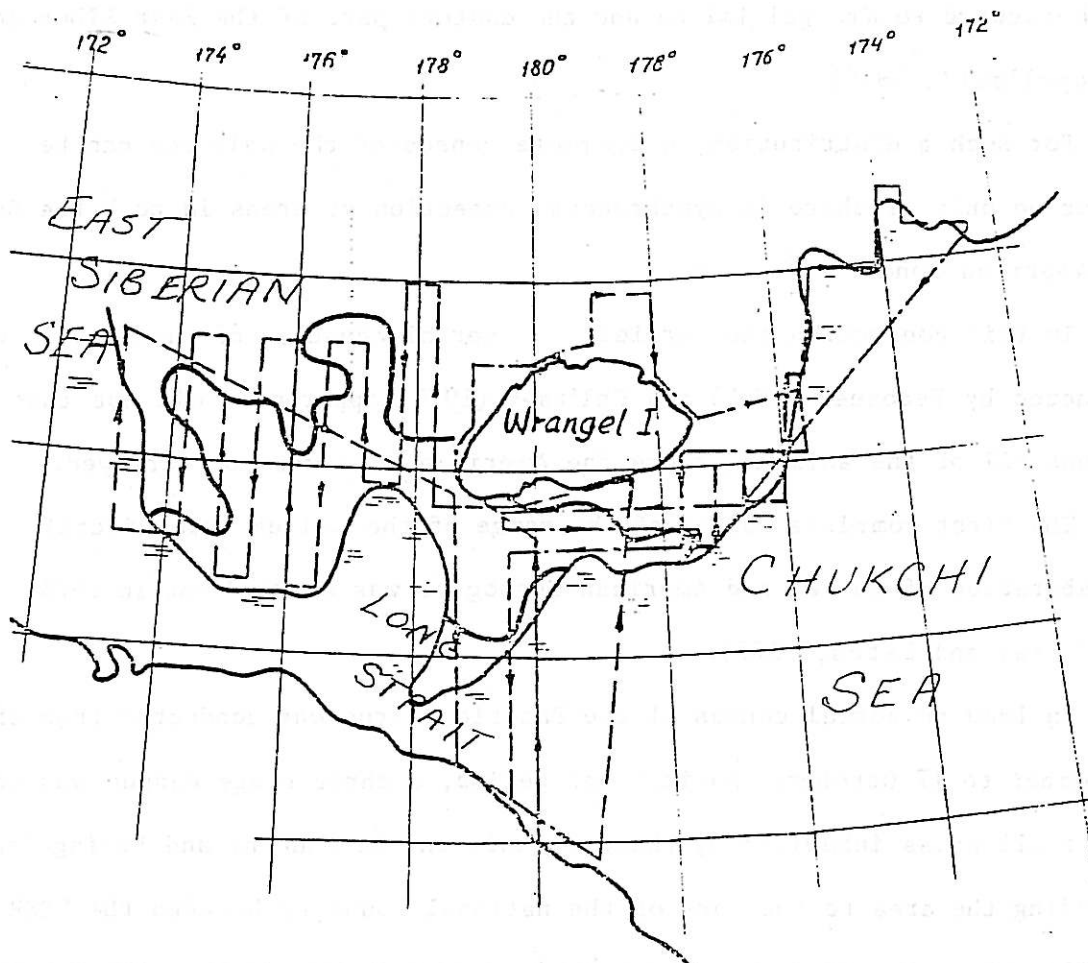


FIGURE 6. Distribution of the Pacific walrus on the ice of the eastern part of the East Siberian and western part of the Chukchi Seas, 25-26 September 1980.

Table 5. Results of the survey of walrus on the ice in the vicinity of Wrangel Island.

walrus/km²!

Date of Survey	Length of survey transects in which walrus were sighted (km)	No. of animals sighted	Surveyed area (km ²)	Total area occupied (km ²)	Estimated no. of walrus
25-26 Sept	1,296	4,781	3.69	21,240	78,375
8 Oct	618	2,362	3.82	14,400	55,008

That distribution of walrus was caused by ice conditions. To the north and east of Wrangel Island was a large zone of young (gray and nilas) ice, on which walrus did not haul out because that ice was too flimsy. All of the walrus were in the zone of small, white floes. In total, estimated by the method of extrapolation, there were about 80 thousand walrus in the ice massif surveyed on 25-26 September. The overwhelming majority on those ice haulouts were females with immature animals. In a few cases, adult males were noted in mixed herds, and isolated all-male herds were seen rarely.

In the next two days (27-28 September), attempts were made to aerially photograph the shore haulouts. Because of adverse weather, however, only 3 out of 13 haulouts were surveyed (Table 6).

In the period from 29 September to 5 October, flying was not feasible because of the need for maintenance work on the airplane and because of adverse weather for flying.

The survey of walrus was carried out again from 6 to 9 October. During that time, a survey of bowhead whales also was conducted.

A complete survey of the shore haulouts of walrus on the Chukchi

TABLE 6. Data from aerial survey of walruses on the shore haulouts.

Location	27 Sept.	28 Sept.	6 Oct.	7 Oct.	9 Oct.	14 Oct.	15 Oct.	17 Oct.
Idlidlya I.			1200		2000			
C. Serdtse-Kamen			11500		11500	11500		
C. Inkigur					6700	6700		
C. Dezhnev					6700			
C. Nunyamo					4500			
Arakamchechen I.			3000		15000	25000	25000	
Nunyangan I.	10000		2000		10000	13000	13000	
Rudder Spit				4300	12000		12000	
Meechken Spit				1000	1000	1500	1500	
C. Anana								1500
C. Skladchatyi								2500
Verkhoturov I.		500						
Karaginskii I.		1000						
TOTAL	10000	1500	17700	5300	69400	57700	51500	4000

Peninsula was successfully carried out on 9 October. On that day, a total of 69.4 thousand head of walruses were recorded on the haulouts.

On 8 October, the survey of walruses on the ice in the Chukchi and East Siberian seas was repeated. In connection with the beginning of rapid ice formation, the walruses using ice haulouts had moved to Long Strait, i.e. they were situated to the south of Wrangel Island (Fig. 6, Table 5). As a whole, the number of walruses on the ice was estimated at 55 thousand head. From 10 to 13 October, a severe storm took place on the Chukchi Peninsula, interrupting the work.

After a heavy snowfall and with establishment of freezing weather, the western part of the Chukchi Sea was covered by ice nearly to Kolyuchin Bay. The number of walruses on the ice was strongly reduced. A survey of shore haulouts of walruses on the Chukchi Peninsula showed that, in total, the stocks of animals on the shore haulouts were nearly unchanged, even though walruses that had lain on haulouts about Cape Dezhnev and Nunyamo apparently had passed on to Arakamchechen Island, when their numbers from 9 to 14 October nearly doubled (Table 6).

In the following days (16-17 October), a survey was conducted of the Koryak and Kamchatkan coasts. The search of the coastal zone, however, was carried out only on 17 October. In contrast to the first survey of that region, which was conducted in the end of September, the walruses were found to have left Verkhoturov and Karaginskii Islands by 17 October.

Thus, assessing the results of the entire survey, one can say the following:

In the eastern part of the East Siberian Sea and western part of the Chukchi Sea, about 80 thousand walruses lay on the ice in the end of September and about 55 thousand on the 10th of October.

In the overall survey of coastal haulouts of walruses, conducted from 9 to 17 October, the total number of animals amounted to 74 thousand head (sum of data from 9 October for Chukotka and 17 October for the Koryak coast). These data yield an overall estimate of the number of walruses within the limits of the surveyed areas at 130 to 150 thousand head. Most probably, this is a maximal estimate of numbers, since migration of walruses from the Chukchi to the Bering Sea begins in the middle of October, influencing the numbers of walruses inhabiting the shore haulouts. That this was not excessive is confirmed by the fact that the numbers of walruses on Idlidlya Island, Cape Serdtse-Kamen, and Inkigur, which are first on the route of migration, remained unchanged. Therefore, there is no basis for apprehension that the walruses inhabiting the ice of the Chukchi Sea in the vicinity of Wrangel Island could have been counted a second time on the coastal haulouts.

Bowhead whales

The population of bowhead whales inhabiting the Bering and Chukchi Seas, after the destructive harvest in the end of the 19th century, was considered to have been nearly annihilated.

In our century, the bowhead whale was recorded in the Chukchi Sea in the 1960's in both the Soviet (Fedoseev, 1966) and the American zones (Johnson et al., 1966).

In the 1970's information was presented on the considerable congregations of whales sighted during the spring and fall migrations (Fedoseev and Gol'tsev, 1975; Braham et al., 1979).

Observations from the research ship Avangard, during a joint Soviet-American expedition in 1979, confirmed our knowledge about the large congregation of bowhead whales in the autumn along the coast of Chukotka

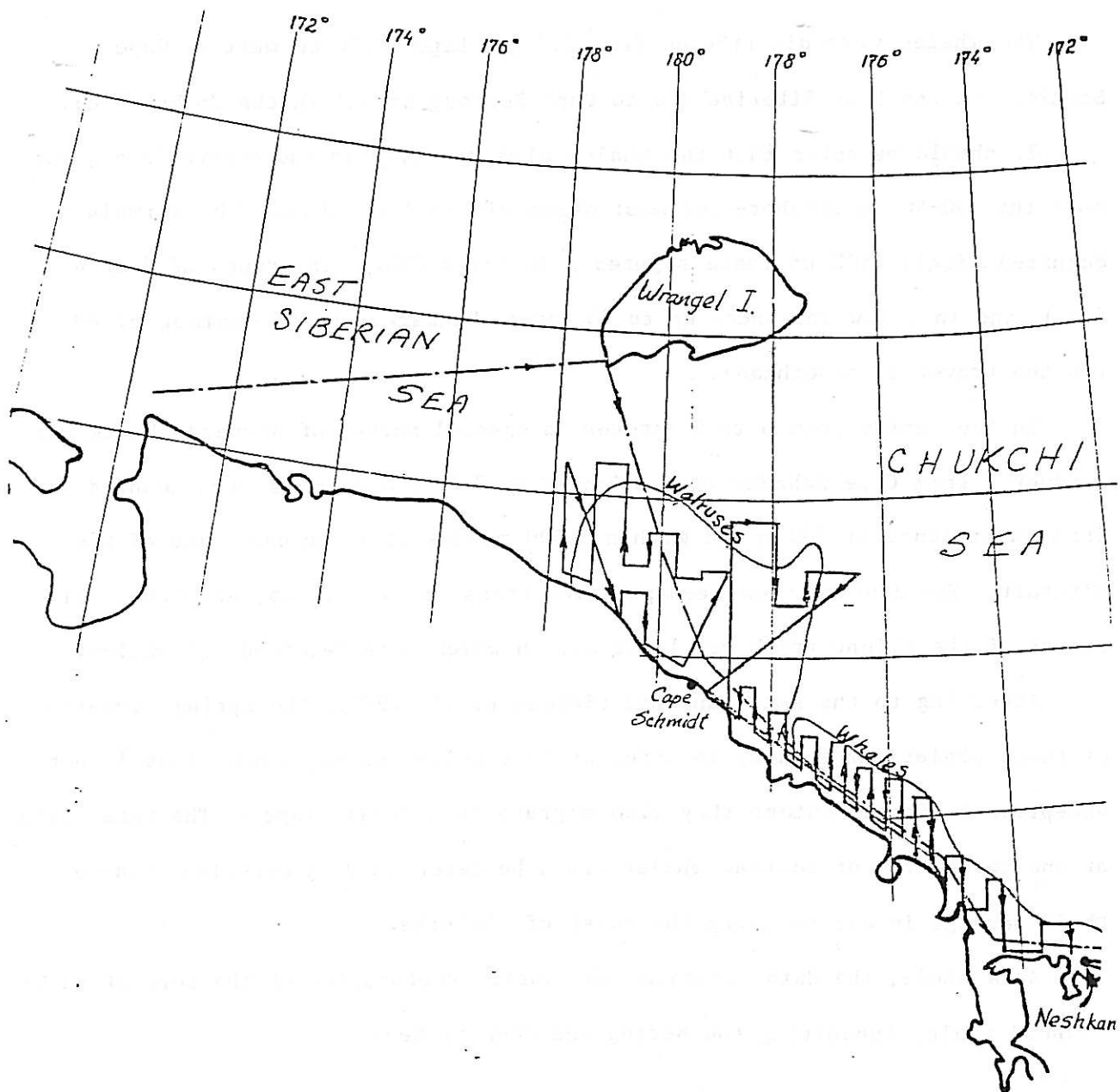


FIGURE 7. Distribution of the Pacific walrus and bowhead whale in the Chukchi Sea, 6-9 October 1980.

(Doroshenko, 1979). The northern border of their distribution was at the latitude of Wrangell and Herald Islands.

In September - October 1980, bowhead whales were again discovered, during the aerial census of walruses.

The whales were distributed from Pil'gen Lagoon (70 km west of Cape Schmidt) in the East Siberian Sea to Cape Serdtse-Kamen' in the Chukchi Sea.

It should be noted that the whales always stayed in the coastal zone, not more than 30-40 km offshore and most often within 3 to 10 km. The animals occurred singly (50% of those sighted), in pairs (30%), in groups of 3 or 4 (15%), and in a few instances up to 20 (at c. Vankarem) and a maximum of 40 (on the traverse to Neshkan).

In the period from 6 to 9 October, a special survey of bowhead whales was conducted from Cape Schmidt to Neshkan (Fig. 7). The animals were counted from an altitude of 200 m and within a 500 m-wide strip on each side of the aircraft. The distance between parallel transects was 10 km, and the total extent of the flight track was 1,028 km, on which were recorded 375 whales.

According to the American data (Braham et al. 1979), the spring migration of these whales takes place in three or four pulses of migrants. That is not exceptional, for in autumn they also migrate in several stages. The total size of the population of bowhead whales could be determined by detailed study of their passage in autumn along the coast of Chukotka.

As a whole, the data indicate substantial restoration of the population of bowhead whales inhabiting the Bering and Chukchi Seas.

Belukha

Observations of belukhas were not numerous. Individual encounters of these animals (7 head, in all) in the Laptev Sea were recorded in the strait between Bol'shoi and Malyi Lyakhov Islands. Possibly there are large numbers

in this region, but detailed inspection here was not carried out.

The largest herd of migrating belukhas was met on 8 October in Long Strait. In one circle with a radius of 25 to 30 km above the herd, more than 150 belukhas were counted. The full extent of these migrating belukhas was not determined, because of insufficient flight time remaining. Belukhas were not seen in this region on other days.

CONCLUSIONS

1. Data from aerial observations showed that, in the Laptev Sea in summer-autumn, two separate groups of walruses were present: Taimyr and eastern (New Siberian Islands). About 1900 animals were estimated to be present in the region.

2. The number of Pacific walruses in the Bering and Chukchi Seas, west of the Soviet-American border, amounted to 130 to 154 thousand head.

The numbers of walruses on the Koryak coast and in northern Kamchatka had increased substantially.

3. In the end of September to October 1981, the range of bowhead whales on the coast of the Asian continent extended from Pentignei Lagoon to Cape Sertse-Kamen'. There, 375 animals were registered. Subsequently, the whales migrated into Bering Strait.

LITERATURE

- Belopol'skii, L. A. 1939. On the migrations and ecology of reproduction of the Pacific walrus. Zool. Zh. 18(5).
- Belousov, I. E. 1952. Gigantic walruses and belukhas. Priroda No. 7.
- Braham, H., B. Krogman, S. Leatherwood, W. Marquette, D. Rugh, M. Tillman, J. Johnson, and G. Carroll. 1979. Preliminary report of the 1978 spring bowhead whale research program results. Rep. Intl. Whal. Comm. 29:291-306.
- Chapskii, K. K. 1940. Distribution of walruses in the Laptev and East Siberian seas. Problemy Arktiki No. 6, pp. 80-94.
- Dorshenko, N. V. 1979. Report on the cooperative Soviet-American expedition for study of marine mammals in the Chukchi and Bering Seas.
- Fedoseev, G. A. 1962. On the status of stocks and the distribution of the Pacific walrus. Zool. Zh. 41(7):1083-1089.
- Fedoseev, G. A. 1966. Aerovisual observations for marine mammals in the Bering and Chukchi Seas. Izv. TINRO 58:173-179.
- Fedoseev, G. A., and V. N. Gol'tsev. 1975. New data on distribution and numbers of marine mammals in the Bering and Chukchi Seas. In Marine Mammals, pt. 2, Kiev, "Naukova Dumka". pp. 144-146.
- Gol'tsev, V. N. 1970. Distribution, calculated numbers, and basis for limiting the catch of Pacific walruses. Unpublished report, MoTINRO No. 2222.

- Gol'tsev, V. N., and Estes, J. A. 1975. Number and distribution of the Pacific walrus (results of the first Soviet-American cooperative aerial survey, autumn 1975). Report I-23.
- Johnson, M. C., C. H. Fiscus, B. T. Ostenson, and M. L. Barbour. 1966. Marine mammals. In Environment of the Cape Thompson Region, Alaska. U.S. Atomic Energy Commission. pp. 877-923.
- Koshkin, V. I. 1940. On the question of wintering of walrus in the western part of the Laptev Sea. Problemy Arktiki No. 7-8.
- Koshkin, V. N. 1940. A herd of walruses on Preobrazhenii Island. Problemy Arktiki No. 5.
- Nikiforov, E. G. and L. O. Shpaikher. 1980. Characteristics of production of large scale oscillations in the hydrological regime of the Arctic Ocean.
- Popov, L. A. 1959. Distribution of walrus haulouts in the western sector of the Soviet Arctic in the summer-autumn period. Informats. Sbornik VNIRO, No. 7, M.:40-49.
- Popov, L. A. 1960. Materials on the biology of reproduction of walruses of the Laptev Sea. Bull. Mosc. Soc. Nat., (sec. biol.), vol. 40.
- Tavrovskii, V. A. 1971. Pinnipeds. In Mammals of Yakutia.
- Uspenskii, S. M. 1958. Distribution of the walrus in the Laptev Sea and western part of the East Siberian Sea in the fall-winter period. Problemy Severa, issue 2.

Uspenskii, S. M. 1963. Birds and mammals of Bennet Island. Trudy
Antarctic and Arctic Inst., vol. 224.

Vinogradov, M. P. 1949. Marine mammals of the Arctic. Glavsvmorput',
Leningrad.

Zakharov, V. F. 1953. Walrus herd on Vil'kitskii Island. Problemy
Arktiki No. 5, 132.