

## Gray Whales (*Eschrichtius robustus*) in the Western Chukchi and East Siberian Seas

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**ABSTRACT.** During joint Soviet-American shipboard surveys in autumn 1979 and 1980, numerous sightings of gray whales (*Eschrichtius robustus*) were made in the western Chukchi and East Siberian seas. Gray whales were observed well offshore in ice-free water in 1979, but near the Chukotka coast in 1980. During the 1980 survey, gray whales were observed further west than previously recorded, with three animals seen at 174°08'E longitude, well into the East Siberian Sea. Based on indirect evidence of gray whale behavior and typical prey organisms identified in bottom samples, we assume gray whales are feeding in the western Chukchi Sea during summer and fall. Movement of these animals further west into the East Siberian Sea may occur regularly when ice conditions permit, but it may also be a response to increasing population size over the past several decades, and gray whales may be reoccupying habitat unused during periods of low population caused by commercial whaling.

**Key words:** gray whale, *Eschrichtius robustus*, cetacean, Chukchi Sea, East Siberian Sea

**RÉSUMÉ.** Lors d'inventaires conjoints soviéto-américains à bord de navires à l'automne de 1979 et de 1980, de nombreuses baleines grises de Californie furent repérées dans l'ouest de la mer Tchouktche et dans la mer de Sibérie Orientale. On aperçut des baleines grises bien au large des côtes dans des eaux libres de glace en 1979, mais près de la côte Chukotka en 1980. Lors de l'inventaire de 1980, les baleines grises apparurent plus à l'ouest qu'auparavant, trois animaux faisant surface dans la mer de Sibérie Orientale à la longitude de 174°08'E. Selon des preuves indirectes du comportement des baleines grises et des organismes de proie typiques identifiés dans les échantillons du fond marin, il est présumé que les baleines grises s'alimentent dans l'ouest de la mer Tchouktche au cours du printemps et de l'automne. Il est possible que ces baleines se déplacent plus à l'ouest dans la mer de Sibérie Orientale lorsque les conditions glaciales le permettent, mais le déplacement peut aussi résulter d'une augmentation de la population durant les dernières décennies, entraînant les baleines à occuper à nouveau les habitats non fréquentés lors des périodes de baisse de population causées par la chasse commerciale à la baleine.

**Mots clés:** baleine grise de Californie, *Eschrichtius robustus*, cétacé, mer Tchouktche, mer de Sibérie Orientale

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In autumn 1979 and 1980 extensive vessel surveys for bowhead whales (*Balaena mysticetus*) were carried out in the western Chukchi Sea, including the vicinity of Wrangel and Herald islands, Long Strait, and, in 1980, into the East Siberian Sea to 174°E longitude. Numerous sightings of gray whales (*Eschrichtius robustus*) were made in both years, mostly in concentrations of two or three but sometimes up to 50 animals (Johnson *et al.*, 1981; Marquette *et al.*, 1982). On 24 September 1980, a joint Soviet-American research team aboard the Soviet whale-catching ship *KS Razyatschiy*, observed one gray whale at 177°17.7'E longitude in Long Strait, four at 176°22.9'E longitude, and three at 174°08'E longitude in the East Siberian Sea (Fig. 1). These sightings represent the western most records of gray whales in the Arctic.

Tomilin (1957) indicated that ice-free areas of the Bering and Chukchi seas were the northern extent of the gray whale's range. He cited numerous records from the nearshore areas along the coast of the Chukchi Peninsula. Slepsov (1961) described the distribution of gray whales in the northwestern Chukchi Sea as ranging "from Bering Strait to Cape Shmidt and Wrangell Island." He noted that the species apparently inhabits the nearshore zone where depths range from 4 to 20 m, in ice-free areas of the western Chukchi Sea, Long Strait, and near Wrangel Island. He further indicated that gray whales have also been observed in fields of thin ice, in polynyas in pack ice, and along the margin of the polar ice pack. However,

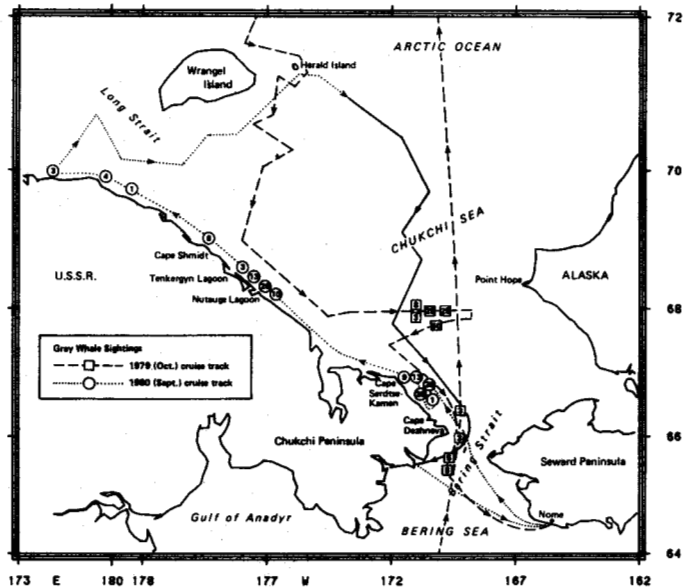


FIG. 1 Survey track and gray whales sighted during the Soviet-American cooperative research efforts aboard the *KS Avangard* (5-22 October 1979) and *KS Razyatschiy* (18 September-1 October 1980). The solid southbound segment of the *Razyatschiy* trackline indicates no systematic sighting due to bad weather and rough seas. The northern segment of the *Avangard* trackline (due north to 74°, westward to 178°, then southward toward Wrangell Island) is deleted because no cetaceans were seen, only small groups of walrus. Surveys were halted at night, so all tracklines represent continuous daytime sighting except as noted above.

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Berzin and Rovnin (1966) described the principal area of gray whale occurrence in the Chukchi Sea as being between Bering Strait and Cape Serdtse-Kamen (approximately 172°W), and northward to 69°N latitude. They indicated that the abundance of gray whales dropped off sharply to the west of this area, where usually only single whales are observed near Nutauge and Tenkergyn lagoons. For that reason they considered the latter lagoon, at 178°W longitude, to be the western boundary for the gray whale in the Chukchi Sea.

During the Soviet-American research survey on the *KS Avangard*, 5-21 October 1979, many gray whales were observed in ice-free water in the south-central Chukchi Sea, well off the coast at about 68°N latitude and between 169°W and 172°W longitude (Johnson *et al.*, 1981), which corresponds to the area of main concentration described by Berzin and Rovnin (1966). Water depths in this area range from 54 to 64 m, which is roughly twice as deep as the gray whales' usual preferred depth (Sleptsov, 1961) but within the expected maximum depth.

In contrast, during the segment of the *KS Razyatschi* survey when both Soviet and American scientists participated (18 September-1 October), numerous gray whales were observed along the coast between 170°20'W and 171°19'W longitude, off Nutauge and Tenkergyn Lagoons (between 176°30'W and 177°52'W), near Cape Shmidt (179°20'W), and three sightings (mentioned earlier) further west in Long Strait and the East Siberian Sea. Alternating between the areas of gray whale occurrence were small (1-27 animals) to large (200+ animals) concentrations of bowhead whales. We therefore conclude that gray whales may be found along the entire Chukchi coast as far west as the East Siberian Sea, depending on annual sea ice conditions and the location of abundant feeding resources.

Rugh and Fraker (1981) reported on gray whale sightings in the eastern Beaufort Sea. Their observations were made in late August 1980 and represented records from further east than any previously reported. It is probably coincidental that both eastward and westward extensions of the recorded distribution were made in the same year and within one month of each other. However, as Rugh and Fraker (1981) pointed out, the Beaufort Sea observations were made during the first season of extensive cetological aerial observation effort. Our sightings in the East Siberian Sea were possible because we arrived in the area just at the time of minimum ice coverage in Long Strait and the coast was ice-free well to the west of 174°E longitude.

Rugh and Fraker (1981) noted that the first two animals they sighted were apparently feeding because the whales were diving and surfacing with clouds of mud issuing from their mouths. While we did not observe clouds of mud because of the low angle of observation from the ship, RVM noted non-directional movements (suggesting feeding) of a large group of gray whales between 177°W and 178°W longitude. A pipe-dredge bottom sample from that area subsequently indicated a sandy bottom with numerous cumaceans present. Rice and Wolman (1971) and Nerini (in press), in summarizing reports on foods consumed by gray whales, indicated that several

principal food items are found primarily on sandy bottoms; they also show that cumaceans frequently occur in the gray whales' diet.

Rugh and Fraker (1981) could not conclude that gray whales regularly range as far east as the Beaufort Sea; however, in 1981 and 1983 more sightings occurred in the same area as the 1980 sightings (B. Wursig and D. Rugh, pers. comm. 1983). If those gray whales seen in the Beaufort Sea migrated from the coast of Baja California, they made a round trip of over 20 000 km (Rugh and Fraker, 1981). Similarly, we have no way of knowing how frequently gray whales move into the East Siberian Sea, but those that do would travel about the same distance as those that migrate into the Beaufort Sea.

The occurrence of gray whales as far west as the East Siberian Sea may be an artifact of an unusually warm summer when the ice receded early and extensively. On the other hand, the coastal area may regularly be available to summering whales. The lack of earlier records may mean nothing more than lack of sighting effort west of Cape Shmidt. However, the gray whale population has been increasing at a rate of about 2.5% per year over the past several decades (Reilly, 1981). They may therefore be returning to habitat occupied before commercial whaling decimated their numbers in the nineteenth century.

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