

## A Walrus (*Odobenus rosmarus*) at the North Pole

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Walruses (*Odobenus rosmarus*) have a patchy circumpolar Arctic range. In the North Atlantic, they are distributed in shallow, coastal areas throughout much of the Canadian Eastern Archipelago, the west and northeast coasts of Greenland, the Svalbard and Franz Josef Land Archipelagos, and in the southern Barents Region, particularly in the Pechora and Kara Seas. The Pacific walrus (*O. r. divergens*) ranges from the Bering and Chukchi Seas to the Laptev Sea in the west and the Beaufort Sea in the east (Lydersen, 2018).

There are many records of walruses outside their normal range. In general, these extralimital records involve animals that have wandered south of their normal distributional area. Vagrants have been recorded in Japan in the Pacific (Nishiwaki & Nagasaki, 1960) and along the coasts of Canada and the United States in the west Atlantic (Allen, 1930; Wright, 1951; Manville & Favour, 1960), and as far south as Spain in the East Atlantic (Nores & Perez, 1988). Walruses are reported annually from the coasts of northeastern Europe, especially along the Norwegian coastline (Lund, 1954; Born, 1988; van Bree, 1997; Ree & Syvertsen, 1998). One vagrant was instrumented with a satellite transmitter at the Faroes Islands; it was tracked to the west coast of Svalbard, which was presumably its point of origin (Born et al., 2014). There are also reports of extralimital occurrences of walruses in the central Canadian Arctic where Pacific and Atlantic (*O. r. rosmarus*) walruses likely mix (Harington, 1966). Currently, in some areas, they are thought to be expanding their range northwards as a result of climate change-induced reduction in the extent of Arctic sea ice (Yurkowski et al., 2019).

During August and September 2018, the Swedish icebreaker *I/B Oden* was the base for a scientific expedition in the Arctic Ocean. This expedition was a cooperative effort between the Swedish Polar Research Secretariat and the U.S. National Science Foundation whose main mission was to sample metrological and atmospheric data from a drift station. Following a short sampling period at the North Pole, a drift ice station was established on an ice floe at 89° 00' N, 39° 11.51' E on 14 August.

On 27 August, a walrus was sighted in the waters behind the vessel (which was then located at 89° 38.2' N, 24° 4' E). A few days later, the walrus was again observed about 2 km from the vessel, “inspecting” the scientific equipment that was deployed from the ice edge (Figure 1). In total, this walrus was observed five times during the course of a week.

South of their normal distributional area, walruses tend to move into populated areas; thus, when they haul out on land, they are easily observed and often reported in local media. But published observations of walruses north of their normal coastal-shelf distributional areas are few. Extensive sea ice over the Arctic Ocean has limited the number of ships entering this area in the past. Some scientific, tourist, and military ice-breaking vessels have gone into the northern areas on an annual basis, but we have not come across any observational records of walruses as far north as the *I/B Oden* observation. Marine mammal tracking studies have demonstrated that some species do enter the Arctic Ocean, but generally they remain over coastal shelves or in the marginal ice zone (Hamilton et al., 2021, 2022). A few exceptions to this do exist. A hooded seal (*Cystophora cristata*) instrumented off the east coast of Greenland (at 73° N) travelled almost to the North Pole before the tag moulted off the seal at 88.5° N; thereafter, the tag drifted slowly with the sea ice in a southeasterly direction (Vacquie-Garcia et al., 2017). In addition, a polar bear (*Ursus maritimus*) instrumented in Alaska was tracked close to the North Pole (Durner & Amstrup, 1995). A polar bear was also observed in the same area at the same time as the walrus reported herein during *I/B Oden's* ice drift station. However, when it comes to walruses, of the more than 90 individuals that have been instrumented from the Svalbard/Franz Josef Land population, the northernmost position recorded has been 82° N (Wiig et al., 1996; Kovacs & Lydersen, unpub. data, 2002-2022; Freitas et al., 2009; Hamilton et al., 2015; Lowther et al., 2015). Similarly, the northernmost record in a walrus tracking study from East Greenland by Born & Knutsen (1992) was also 82° N. Additionally, in records from the Norwegian



**Figure 1.** An adult male walrus (*Odobenus rosmarus*) inspecting various scientific equipment close to the North Pole (Photo credit for both photos: K. Alfredsson)

Polar Institute's mammal sighting database in which research vessels, Coast Guard ships, tourist vessels, and other visitors to Svalbard report sightings, the northernmost location of some 2,800 walrus observations (including more than 75,000 individuals) was just north of 82° N (Bengtsson et al., 2021).

The walrus observed on the I/B *Oden* expedition could of course have come from any Arctic

area, but it is a much shorter distance from terrestrial haul-out sites to the North Pole for Atlantic walrus than for Pacific walrus. The ice edge in areas north of Svalbard and Franz Josef Land has generally been 80 to 82° N in summer throughout the last decade, providing a resting platform for ice-dependent pinnipeds. Walrus are known to occupy areas with dense ice cover, and they can

travel many hundreds of kilometers inside the ice edge during the winter breeding period in the areas between Svalbard and Franz Josef Land (Freitas et al., 2009), so ice extent at the North Pole currently should not represent a barrier to walrus. However, the water depth at the North Pole is greater than 4,000 m, and walrus usually feed on benthic bivalves and other bottom-dwelling organisms. There is sympagic (ice-associated) production on the underside of sea ice, especially under multi-year sea ice. Recently, it has also been demonstrated that there is a mesopelagic layer between 300 to 600 m in the Central Arctic Ocean, which is thought to consist of fish and zooplankton (Snoeijs-Leijonmalm et al., 2021). However, neither of these sources are likely to provide food for a walrus. This fact, in combination with the relatively modest diving records for walrus (for Svalbard walrus, 140,000 dives were analysed; only 1.2% of these were deeper than 100 m, and max. record was 461 m; see Lowther et al., 2015), likely rules out the North Pole area as a potential feeding area for this species. The male walrus reported herein was in good condition, so it is likely that he was a transient visitor to this latitude.

Thus, this walrus at the North Pole should be considered a vagrant visitor to this area, and its presence should not be interpreted as a climate change-induced range expansion. It is likely that his trip to this extreme latitude was exploratory. Walrus can fast for significant periods of time, fuelled by their extensive blubber layer. They can also cover linear distances of 670 km in 10 days (Freitas et al., 2009), so this individual would likely have little trouble finding his way in a short period of time to shallower southern waters where appropriate prey is available.

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