

## ATLANTIC WALRUSES OF THE WESTERN RUSSIAN ARCTIC

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This paper focuses on the Atlantic walrus (*Odobenus rosmarus rosmarus*) inhabiting Russian waters. Recent publications, unpublished materials and some papers that were not used in the previous NAMMCO work on this subspecies (Born et al. 1995) have been analyzed to update its status. Unpublished data on the distribution have been derived mostly from materials collected by multiyear aerial reconnaissance of sea ice (ARSI) performed on regular base in Soviet (Russian) Arctic from 1950s to 1990s (Belikov and Boltunov 2002).

### GENERAL DISTRIBUTION

According to Heptner et al. (Гептнер и др. 1976) three walrus subspecies are represented in the Russian Arctic: the Atlantic walrus, the Laptev walrus (*O.r. laptevi*) and the Pacific walrus (*O.r. divergens*). It is generally accepted that in Russian waters the Atlantic walrus range covers the Barents and Kara seas. However the ARSI observations allow assuming that eastern limit of the range expands to northwestern part of the Laptev Sea (fig. 2).

Historically walruses were common in the White Sea. In 11-12<sup>th</sup> centuries walrus were hunted in the Onezhskiy Bay of the sea and their total extinction in the Mezenskiy Bay of the White Sea is dated to the second half of the 19<sup>th</sup> century (Тимошенко 1986). In 1980s in spring walruses regularly appeared in the Funnel of the White Sea (Тимошенко 1986). According to anecdotal data recent 15-20 years character of the walrus appearance in the White Sea has been the same.

ARSI observed walruses in the Arctic Basin in late summer - early autumn (fig. 2).

### WINTER DISTRIBUTION

Southeastern Barents Sea is well-known winter habitat of walruses. This is supported by ARSI data (fig. 3) and by vessel-based observations in May-April 1997-1999 (Зырянов и Воронцов 1999) and in February 2000 (Горяев и Воронцов 2000). Solitary animals or small groups (2-7) were usually met on ice floes in areas with depth less than 70 m covered by broken ice or continuous grey-white young ice or near vast lanes. In February 1993 138 walruses (including 21 "mother-calf" pairs) were sighted near northeastern Kanin peninsula and in western part of the Pechora Sea (Haug and Nilssen 1995). Comparatively large groups of walruses (up to 130 animals) were observed in the southeastern Barents Sea in winter season in 1970s (Белобородов и Тимошенко 1974, Лукин 1978). Scarce observations of solitary walruses near western shore of the Novaya Zemlya, southern island 1948-1950 were reported by Успенский (1998). Usually animals were seen at the fast ice edge near the western entrance to the Matochkin Shar Strait. The only group of 12 walruses was observed in the end of March, 1948.

There is a common opinion that in Russian Arctic Atlantic walruses spend winter only in the Barents Sea and mostly in its southeastern part (Гептнер и др. 1976, Мишин и др. 1989, Попов et al. 1990). However ARSI materials (fig. 3) and vessel-based observations (Зырянов и Воронцов 1999, Горяев и Воронцов 2000) prove that in winter walruses also stay in some parts of the Kara Sea. Moreover ARSI indicates that in winter northern Kara Sea with adjacent northwestern Laptev Sea host more walruses than other parts of the sea. Apparently walruses also stay near northernmost Novaya Zemlya, were authors also saw 2 animals on April 17, 1995.

Frantz Josef Land is another area of year-round presence of walruses. Aerial survey of this area in April 1980 and 1981 (Беликов и др. 1989) as well as ARSI data show that in the end of winter walruses usually stay on the fast ice edge and adjacent zone of young ice north, west, and south of the archipelago. In April 25-27, 1995 in the course of polar bear tagging work authors observed 31 walruses (solitary or groups of 2-3 animals) between islands.

## SEASONAL MOVEMENTS

Basing on indirect data Heptner et al. (Гептнер и др. 1976) proposed the following scheme of seasonal migrations of walruses. In spring - summer when ice retreats some walruses from the southeastern Barents Sea move to the northern part of Novaya Zemlya, while others go through straits of Novaya Zemlya to the southern part of the Kara Sea. In the end of September when new ice formation begins walruses move back to the wintering grounds (southeastern Barents Sea).

ARSI data, our observations and published data (Зырянов и Воронцов 1999, Горяев и Воронцов 2000) allow supposing that near northern Novaya Zemlya and in southern Kara Sea walruses stay the whole year round. Thus we suppose that there are local seasonal redistributions in one area rather than pronounced migrations described by Heptner et al. (Гептнер и др. 1976).

We do not have enough data to make any conclusion about seasonal movements of walruses in the northern parts of the Kara and Laptev seas. Nevertheless we suppose that walruses in this area have only limited local movements due to comparatively insignificant ice cover dynamics.

## SUMMER DISTRIBUTION

According to Uspenskiy (Успенский 1998) walruses can be met near western coast of the Novaya Zemlya Southern Island and near the Matochkin Shar Strait, where he observed a group of about 30 animals on the shore in mid July 1992. Walruses are regularly observed in the southwestern Kara Sea west of the Yamal Peninsula. Some walruses stay near Vaigach Island. According to Калякин и Мужчинкин (1990) up to 50 walruses regularly hauled out on western coast of the island in 1980s.

Similar to winter season, in summer walruses occupy area around northern part of Novaya Zemlya (Тимошенко 1984, Халин 2000) hauling out on Gamskerk and Oranskiye islands. ARSI sighted walruses in the northern Kara Sea (fig. 4). Walruses observed in the eastern part of the sea presumably belong to the Laptev subspecies.

Frantz Josef Land archipelago with adjacent waters is important area for walruses in western Russian Arctic (Born et al. 1995, Wiig and Boltunov 1997, Тимошенко 2002, our observations of 2004). In August 2001 groups of walruses from several individuals to 20-30 were observed near islands Alexandra Land, George Land, Hooker, Northbrook, Hayes, Jackson and in other parts of the archipelago (Тимошенко 2002). On August 11, 2001 during the same cruise coastal haul out of about 500 walruses was observed on the Victoria Island west of the Frantz Josef Land.

In August 2004 Norwegian-Russian polar bear survey was conducted in the northern Barents Sea including Svalbard and Frantz Josef Land (Aars et al. 2004). In the course of the work haul out of about 250 walruses were found on western tip of Victoria Island (03.08.2004). About 550 walruses were encountered in the area of Frantz Josef Land. Haul outs were found on Hayes Island (about 100), and on small island west of Eva-Live (northern part of FJL) – two groups of 200 and 100 animals. Loose aggregation of walruses were found in area west of Hayes Island and in northeastern part of the archipelago. Most walruses were found in groups (2-10 animals) of different sex and age including yearlings.

In our opinion the Atlantic walrus forms at least two populations in the Russian Arctic (fig. 5):

1. Northern population occupies northern parts of the Barents, Kara and Laptev seas and adjacent waters of the Arctic basin. This population consists of at least two subpopulations (groupings) – one inhabits the Frantz Josef Land area, the other – northern part of the Kara and Laptev seas.
2. Southern population consists of two subpopulations (groupings). One of them occupies southwest of the Kara Sea and southeast of the Barents Sea including the White Sea Funnel, the other – waters around northern part of Novaya Zemlya.

Satellite telemetry confirmed an assumption about exchange between stocks inhabiting areas of Svalbard and Frantz Josef Land (Gjertz and Wiig 1994). One can suppose similar exchange between northern and southern populations. According to ARSI walrus are scarce in central part of the Kara Sea what concurs with opinion of Chapskiy (Чапский 1941) who explained this phenomenon by deep waters embarrassing walrus feeding.

## HUNTING AND ABUNDANCE

Although walrus hunting in area of Novaya Zemlya and in the Kara Sea is known since 17<sup>th</sup> century it was most active from 1830s till the end of 1920s (Чапский 1939). In 1956 walrus hunting in Soviet waters was totally prohibited in by Governmental Decree of the Russian Soviet Federal Social Republic “About measures for protection of Arctic fauna”.

In the Frantz Josef Land area large-scale harvest of walrus lasted from 1897 to 1934 until it became unprofitable due to exhaustion of the population (Gjertz et al. 1998). In further two decades few walrus were taken randomly by several expedition teams. Total about 12,000 animals were taken in considered period (Gjertz et al. 1998).

Backcalculation of original population size for walrus in Frantz Josef Land to the beginning of commercial harvest gives 6,000-12,500 walrus (Gjertz et al. 1998). Exploitation lasted for several hundred years resulted in the dramatic decrease of the species abundance. According Чапский (1936) total number of walrus in the Barents and Kara seas hardly exceeded 1,200-1,300 by 1930s. By mid 20<sup>th</sup> century, when walrus hunting in Russian waters was ceased, their stock in Frantz Josef Land numbered about 1000 (Gjertz et al. 1998).

By the end of the 1970s Бычков (1978) estimated stock of walrus in the Barents and Kara seas to several hundred. This estimate was obviously understated as far as 1,200-2,000 walrus were counted at coastal haul outs of Frantz Josef Land and northern part of Novaya Zemlya (Тимошенко 1984). After implementation of total ban against walrus hunting abundance of the species in the Barents Sea has begun to restore (Born et al. 1995). In August-September 1998 in the course of zoological survey of coastal area of northern part of Novaya Zemlya about 400 walrus were counted (Хахин 2000). Basing on results of that survey Вехов и Хахин (1999) estimated local stock in the area about 600.

Sokolov et al. (Соколов и др. 2001) assume that present number of walrus in the Barents and Kara seas may reach up to 3000.

## HUMAN RELATED IMPACT

Overharvest of some mass fish species, environmental pollution and other anthropogenic factors have caused transformation of the Barents Sea ecosystems. Negative impact of some of these factors (in particular – high level of persistent organic pollutants) was found in polar bears of the Barents Sea (Lie et al. 2003). Ongoing or prospective projects of industrial development in the Arctic (exploitation of hydrocarbon resources on sea shelf, commercial navigation through the Northern Sea Route) will intensify negative impact on walrus especially in those areas of active industrial activity which coincide with key habitats of the species.

*Exploitation of hydrocarbon resources*

Rich oil and gas fields are found in the Barents Sea. At present the richest proven oil field on the shelf of the southeastern Barents Sea – *Prirazlomnoye*, is under preparation for exploitation. Oil is planned to be transported by shuttle oil-carriers all-the-year-round from two terminals (Kolguev Island and Varandey) to Murmansk (Kola or Pechenga bays) where it will be loaded onto oil ship for further export transportation.

Operation of derricks installed on sea shore or nearby (for example on Yamal peninsula) causes contamination of marine ecosystems by hydrocarbons and drilling solutions toxic to sea organisms. In emergency conditions during oil transportation by supertankers through southern part of the Barents Sea possible oil spill can cause serious threat to sea organisms on every trophic level.

*The Northern Sea Route*

Russian Arctic seas have been used traditionally as a navigation passage for hauling cargo to provide supply for settlements and towns in the Russian Arctic zone. Both short- and long-term plans of economic development of Russian Arctic and northern territories suppose active use of the Northern Sea Route (NSR). Importance of this passage will increase considerably in case of realization of plans to use it for commercial navigation between Northern Europe and Asian-Pacific countries. Such kind of the NSR use will cause certain environmental problems for ecological security of Russia (Беликов 2000). Commercial use of the NSR supposes all-the-year-round sailing of considerable quantity of different vessels from different countries carrying a variety of cargo. Crude oil, oil products and gas condensate will comprise the majority among hauled cargo, what will definitely increase potential environmental threat. Even accident-free navigation will cause marine water pollution.

## PROTECTION AND MANAGEMENT

The Atlantic walrus is not a CITES subject. Since 1956 walrus hunting has been prohibited in Russian waters. The Atlantic walrus is listed in the Russian Federation Red Data Book, category 2 (decreasing taxons and populations). Protection and management of species listed in the Red Data Book of Russia is regulated according to legislation of the Russian Federation (see details in SC/12/WWG/8). Recent decades cases of catching or killing Atlantic walruses in Russian waters are not known.

Especial protection of the species is provided in Federal Nature Refuge “Zemlya Frantsa-Iosifa” (Frantz Josef Land), in State Nature Reserves “Nenetskiy”, “Gydanskiy” and “Bolshoy Arkticheskiy” (Great Arctic). In other parts of the Atlantic walrus range the species and habitats are not protected what exposes the species to potential threat. This threat is especially serious in areas where in the nearest future oil production and transportation are planned.

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Fig. 1. Map of the Barents and Kara seas with geographic names used in the text

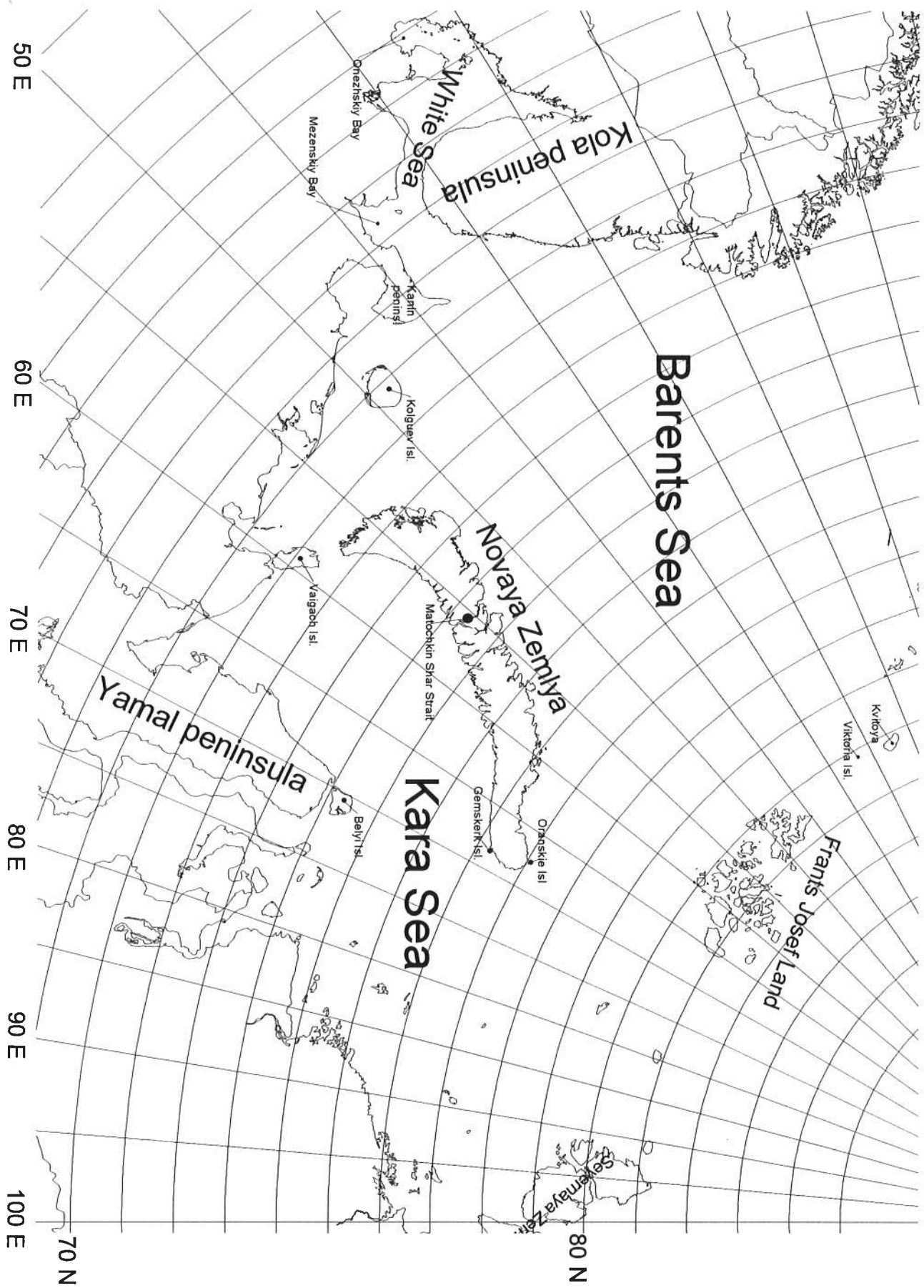




Fig. 2. ARSI sightings of walrus in the Barents and Kara seas (1957-1995)

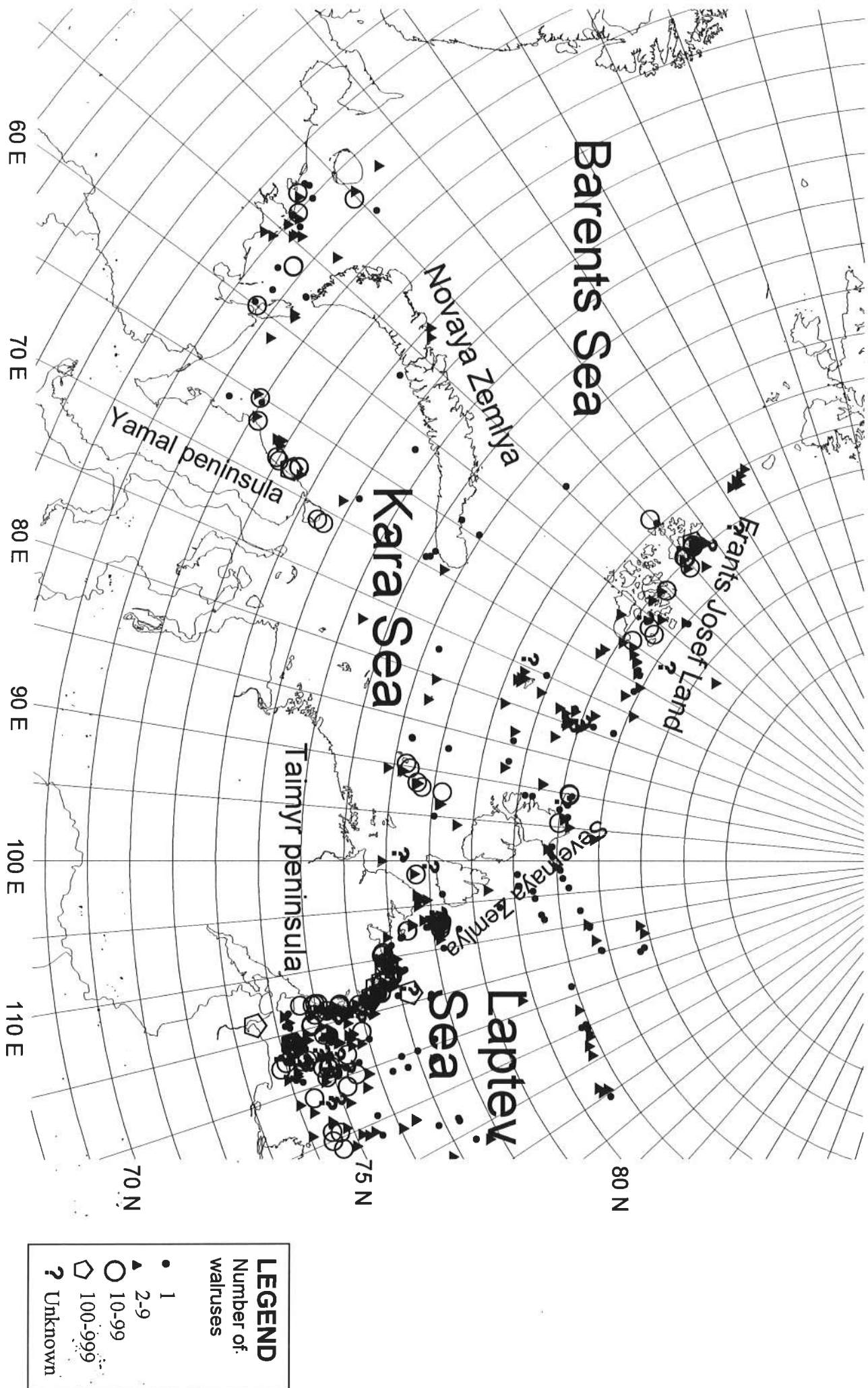




Fig. 3. ARSI sightings of walrus in the Barents and Kara seas in November - June (1957-1995)

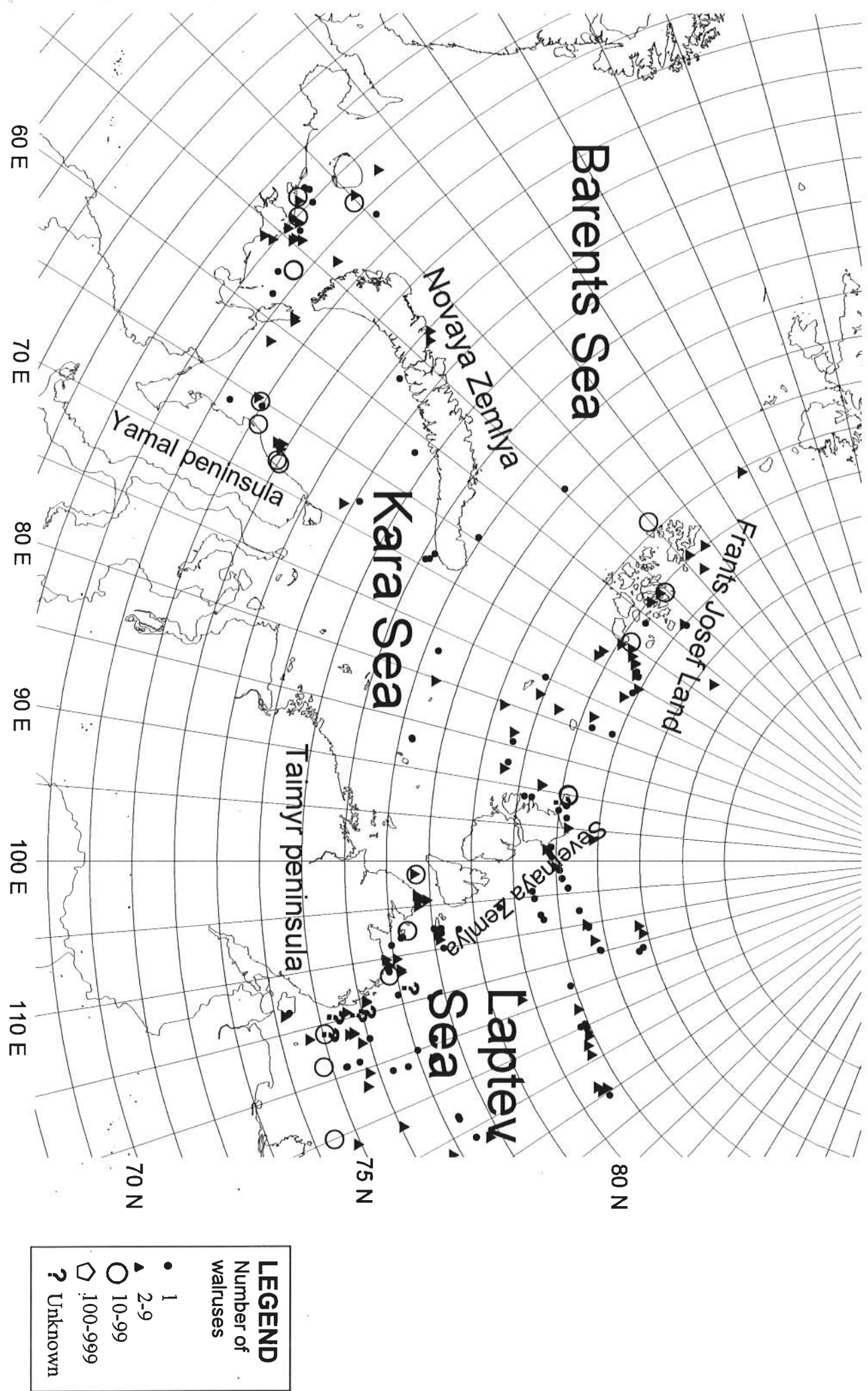




Fig. 4. ARSt sightings of walruses in the Barents and Kara seas in July - October (1957-1995)

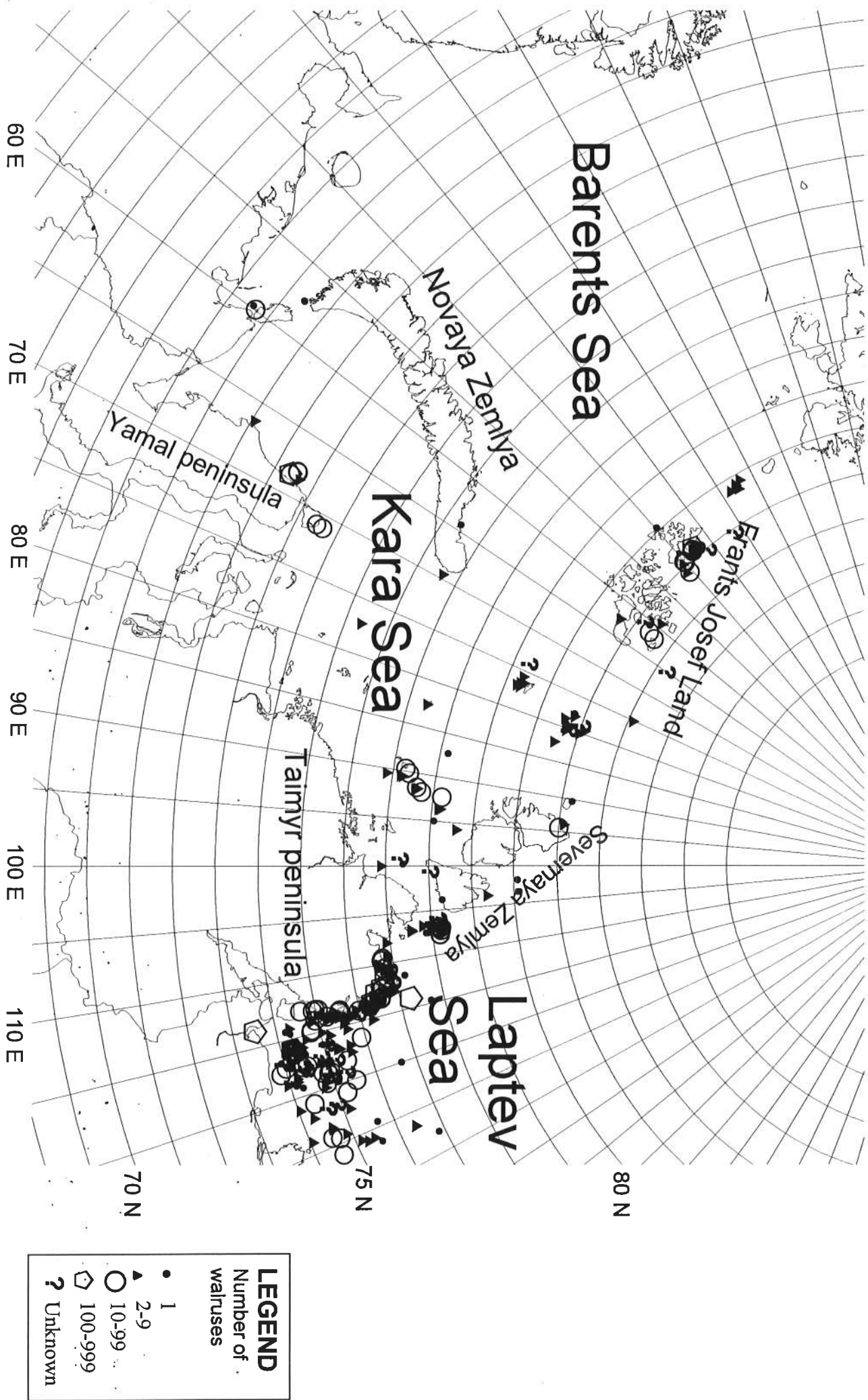






Fig. 5. Proposed ranges of walrus populations in the Barents and Kara seas

