

THE ROLE OF ICE IN CHANGES OF PACIFIC
WALRUS DISTRIBUTION AND THEIR NUMBERS

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Analysis of the data obtained in 1930-1989 regarding walrus distribution along with the data on ice conditions makes it possible to reveal some trends concerning habitats and numbers of the species caused by ice.

Walrus are unable to live in the environment of continuous thick ice. So many regions rich in food are not accessible for walrus. Hence, potential food resources considerably decrease. The periodicity of ice changeability can be retraced. From 1930 till 1958 ice conditions, in most cases, were unfavourable for walrus fattening. It was seven years out of 28 only when the walrus could reach entire regions. The rest of the years the foraging areas were covered with continuous ice fields. From 1959 till 1974 ice conditions were not severe and never exceeded the annual average parameters. That is why the walrus could have access to foraging areas in summer and autumn for 15 years. It caused increasing the species numbers, those years it reaching maximum value.

1975-1989 were the years of hard ice conditions. Because of the high population numbers and often recurrence of years of limited access to the foraging areas in the Chukchi Sea, walrus distribution expanded southward, namely, to the coast of Kamchatka (Pinigin, Pryanishnikov, 1975; Semyonov, Burkanov, Mashagin, 1988).

Negative consequences of the phenomenon were caused by the fact that in wintering areas load on foraging areas increased, so more and more walrus did not leave the Bering Sea. Before exclusively males could be found on coastal breeding-grounds (Yablokov, Belkovich, 1962; Krilov, 1965), in the early eightieth there were a lot of females and young there (Mimrin, Grachyov, 1986; Grachyov, 1988).

According to the air photography data, analysis of walrus numbers on ice fields and coastal breeding-grounds within the

Soviet zone showed 80 per cent of walruses to have left for the east part of the East-Siberian Sea and for the west part of the Chukchi Sea when ice conditions are normal; while when ice conditions are severe, 80 per cent of walruses were registered on coastal breeding-grounds in Bering Strait and the Gulf of Anadyr.

Thus, the present data show that ice changeability is one of the main factors affecting walruses numbers dynamics and their distribution. Those factors seem to have influence on changeability in intrapopulation processes, including growth, maturity, survival of young animals, and increasing of population.

According to literature certain portion of walruses migrate along Alaska towards Barrow, the other part to Wrangel Is. We think that the number of walruses migrating to those areas may differ depending on ice conditions. To Alaska coastal waters walruses arrive earlier than in the area off Wrangel Is., and certain part of them may depart towards Long Strait at the end of July and during August. The intensity of these migrations is higher when Long Strait and the area around Wrangel Is. is not blocked by heavy ice.

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