

Seals of the Okhotsk Sea: Migrations and Ecology as Context for Comparison with Bering Sea Populations

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In 2011-2014, we tagged 29 seals of three species (8 bearded, 16 spotted and 5 ringed) in three regions of the Okhotsk Sea: Ptichiy Island, the mouth of the Bolshaya River (west coast of Kamchatka), and Chkalova Island (Sakhalin Bay). We tracked individual seals from 10 to 269 days to investigate migration routes and connections between summer feeding areas and winter breeding areas. During winter, spotted seals from Kamchatka used the northwestern Sea of Okhotsk; seals from Sakhalin Bay – went to Tatar strait. Bearded seals chose only the nearest breeding area, over the continental shelf near northern and northwestern Sakhalin Island, and didn't use other well-known breeding areas in the Okhotsk and Japan seas. Ringed seals from Sakhalin Bay spent the winter around Sakhalin Island.

All seals used mostly shallow water (about 20 m) until the ice formation. Then, spotted and ringed seals immediately went into deeper water. Bearded seals occupied only shallow waters until ice pushed them from the coast (but not deeper than 200 m). During winter, ringed seals preferred first-year ice of 30-200 cm thickness (more than 40% of locations in January and 60% in February). From January to April, almost all locations of bearded seals were on ice while the proportion of first-year ice (30-200 cm) increased with each month. In March, when the breeding season started, more than 80% of locations were recorded on thick annual and closely packed (9-10 tenths cover) ice. Spotted seals from January to May preferred first-year ice (46-90% of locations). During winter the most locations (62-95%) were in dense ice (9-10 tenths). Seals rarely used ice of 2-6 tenths cover, as they tend not to lie on separate floes. The thickness of the ice cover was the most significant factor for the all species (48.8% variance explained for ringed, 62% for spotted and 60% for bearded). Water depth was important only for bearded seals (27% variance explained). Seal populations in the Sea of Okhotsk