



two Finnish spitzes. Owing to remarkable agility and supreme hunting qualities, these small, lightweight dogs are especially commendable in the search for seal lairs in deep snowdrifts. The dogs would smell these lairs out, dig them out and bark to draw the researchers' attention.

In a cold, delayed spring, when the lairs' snow roofs remain intact, it is hunting dogs that help find the lairs. Involvement of hunting dogs can be recommended for the study of wintering of pinnipeds (ringed seal).

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WINTERING AND BREEDING PATTERNS IN LADOGA RINGED SEAL (*PHOCA HISPIDA LADOGENSIS*) IN THE NORTHERN PART OF THE LAKE UNDER THE EFFECT OF ABRUPT CLIMATIC FLUCTUATIONS

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The most important periods in the life of the Ladoga ringed seal – wintering, breeding and molting, are directly connected with the ice cover.

The animals begin making snow-ice lairs as early as in December. To this end, the animals use snow drifts near shore cliffs or small rocky islands in the northern skerried part of the lake, or pack ice in southern Ladoga.

Ten years ago, in 1996-99, we thoroughly studied wintering of the Ladoga seal in the northern part of the lake (Kunnasranta et al. 2001; Medvedev et al. 2002; Sipilä et. al. 2002). Given the abrupt climate fluctuations of the past years repeating such studies in the area and comparing new results with the data obtained ten years earlier appeared interesting.



The surveys were carried out in the northern part of the lake in the first half of April 2009. They focused on finding and examining seal lairs. The lairs found were classified into birth lairs and haul-out lairs. The length, width and height of snow chambers, thickness of the lair roof, depth underneath the exit hole leading from the chamber to the water, as well as thickness of the snowdrift the lair was built in were measured. Birth lairs were found to be significantly longer ($p<0.01$) than haul-out lairs; they had higher chambers ($p<0.01$) and thicker snow roofs ($p<0.05$). The most significant ($p<0.001$) difference between these types of lairs was in the depth of the snowdrifts they were made in.

One of the consequences of recent abrupt climate fluctuations and a series of warm winters in the north-western region is a notable reduction in the amount of snow covering the ice in the northern part of Lake Ladoga. Ten years ago, some seal lairs were located in snowdrifts about two metres thick (Sipilä et. al. 2002). In our latest surveys, the biggest snowdrifts containing seal lairs were less than a metre thick. The average thickness of the snowdrifts in which seal birth lairs were found in 1996-1999 was around a metre (Kunnasranta et al., 2001). Ten years later, this parameter dropped to 0.7 metres. The significant reduction in the thickness of the snowdrifts along the shore observed lately is not just an obstacle for female seals, who badly need such lairs to produce progeny, but also makes the lairs much more vulnerable to the attacks of predator (red foxes and wolves).

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