



## LONG-TERM VARIATIONS IN TIMING OF SPRING ARRIVAL AND START OF BREEDING OF WATERFOWL IN KIVACH RESERVE (SOUTHERN KARELIA)

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Long-term observation data (1970-2009) on the time of spring arrival of 5 waterfowl species (Whooper Swan *Cygnus cygnus*, Mallard *Anas platyrhynchos*, Teal *A. crecca*, Goldeneye *Bucephala clangula* and Goosander *Mergus merganser*), and on emergence of the first broods of Mallard and Goldeneye have been analyzed. The timing of spring arrival in all species except for Mallard correlated with the temperatures of the period shortly preceding their arrival (February-March for Whooper Swan and Goldeneye, March – for Goosander, March-April for Teal). A significant positive trend in temperatures of late winter – early spring in Kivach was revealed only for the third ten days of April. Nevertheless, Whooper Swan and Mallard, which arrive, as a rule, much earlier, showed a significant tendency for earlier arrival. Other species did not shift the timing of their arriving. Early spring arrival of Whooper Swan in last years is connected with its increasing numbers in the region, where it has resumed breeding. In Mallard this trend is probably connected with a rise in the number of the birds wintering in northern regions.

In Mallard and Goldeneye a significant tendency towards earlier appearance of broods was recorded. It may be explained by warming of late April, when egg laying in the nests of these species begins.

