



Fig. S1. Number of NDWI lake masks for the peak of the melt season (July-August) during 1985 to 2020, which were then merged into annual lake masks. The exact dates of Landsat-5 TM, Landsat-7 ETM+ and Landsat-8 OLI satellite images used are listed in Supplementary Material 1A.

A NDWI lake mask was created from largely cloud-free images that cover the entire area of interest for lake analysis. Images that did not cover the entire lake area on the same date were not used for creating a NDWI lake mask. In years in which the number of July/August images was insufficient and a suitable image was available at the end of June, a NDWI lake mask from end of June was added.

The threshold applied for creating NDWI lake masks was added above the bar for each year. The threshold was selected for the NDWI lake mask to represent its according true color image as accurately as possible. Therefore, in some years the threshold had to be adjusted accordingly and resulted in a range of threshold values.