



# Joint European Stable Isotope User Meeting 2022

UNIVERSITY OF  
EASTERN FINLAND  
Kuopio, Finland

—  
10–14 October 2022

—*Abstracts*—

**“The important thing is to never stop questioning” (Albert Einstein)**

Topic groups: 09. Isoscape, Spatial Variability of Stable Isotopes (Migration, Food Webs),

Presentation types: Oral presentation

Title: The variable food webs in cold-water lakes

Lead author: Antti Eloranta, University of Jyväskylä

Author:

Keywords: Food web, littoral-pelagic coupling, salmonid fish, subarctic lakes,  $d^{13}C$ ,  $d^{15}N$

Content:

Cold-water lakes in high-latitude and alpine regions are subject to rapid environmental changes due to various local (e.g. land use activities, hydropower operations and invasive species) and large-scale (e.g. climate change and acidification) human impacts. The altered abiotic and biotic conditions in cold-water lakes can induce marked changes in the structure and function of food webs, which are reflected to the trophic ecology and population dynamics of top predator salmonid fishes. In this talk, I will summarize some of our findings to illustrate how the natural characteristics (e.g. lake size and community composition) and various human impacts (e.g. invasive species and hydropower-induced water level fluctuations) can influence littoral benthic and pelagic planktonic food-web compartments in Fennoscandian cold-water lakes. I will also introduce our recently started Academy Research Fellow project "COLDWEBS", where we compile stable isotope data from >100 Fennoscandian lakes to investigate lake food-web dynamics along large biogeographical gradients. Our large-scale research of highly-valued, vulnerable salmonid fish populations and food webs aims to provide new knowledge that supports future development of sustainable management and mitigation actions in subarctic and alpine Fennoscandian lakes.