

## Analysis of radiocarbon distribution in the eutrophic lake fish assemblage using stable N, S, C isotopes

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The  $^{14}\text{C}/^{12}\text{C}$  ratio distribution and its relationship with stable S, C, and N isotopes among the fish of Lake Tapeliai was studied. The radiocarbon age of the fish in this lake, which was constantly affected by the inflows of the  $^{14}\text{C}$  depleted carbon sources from the surrounding watershed mires, ranged from 119 to 693 yr. No relationship of the carbon isotope ratio values with the sulfur or nitrogen isotope ratios was observed in the studied ecosystem. However,  $^{14}\text{C}/^{12}\text{C}$  measurements correlated significantly with  $\delta^{13}\text{C}$  values in fish tissues.

$^{14}\text{C}$  analysis is essential to trace the pathways of modern terrestrial carbon through the food web in freshwater lakes. However, reconstructing the diet of fish such as carp, adapted to penetrate deep (up to one meter) into sediments, it is necessary to examine the sediments themselves and how they have been affected by  $^{14}\text{C}$  from the bomb peak. It was our previous sediment studies that showed that the deeper sediment layers were not enriched in  $^{14}\text{C}$  due to the bomb peak, but depleted in  $^{14}\text{C}$ , and this helped determine that carp were fed by allochthonous food sources provided by anglers.