

## $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ measurements in Antarctic Notothenioid fishes: variation of their trophic ecology.

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The Southern Ocean currently undergoes major environmental modifications related to climate change such as changes in the sea ice cover, temperature and acidification. When faced with environmental changes, all organisms are expected to have some intrinsic capacity to adapt their ecological habits to their new life conditions. Currently, biological traits of many Antarctic species are still unknown and we need such information to assess their capacity to adapt to natural and anthropogenic perturbations. Notothenioides (Perciformes), or icefishes, are endemic to the Southern Ocean and they are an important trophic component of these marine ecosystems.

To better understand their resources partitioning and the influence of environmental changes on their trophic ecology, we used muscle stable isotopes ratios of carbon ( $\delta^{13}\text{C}$ ) and nitrogen ( $\delta^{15}\text{N}$ ) of two widespread genera of icefishes (*Trematomus* and *Lepidonotothen*) sampled in 2002/2004 and/or in 2015/2016. Isotopic niches (which are a proxy of the realized ecological niches) were modeled using the SIBER (Stable Isotope Bayesian Ellipses in R) R-package.

For the two sampling periods, our results revealed a great variation in isotopic compositions among Notothenioid fishes, suggesting that they exploit a wide array of resources. The overlap between the isotopic niches of *Trematomus* and *Lepidonotothen* genera in 2002/2004 highlights a possible past competition for resources. Moreover, temporal evolution of niches suggests taxon-specific ecological plasticity in response to variation in environmental parameters and/or in prey availability. An increase in resources partitioning between the two genera was observed over the studied period. In the future, it would be interesting to complete our results with a stomach content analysis and to use mixing models including isotopic composition of potential preys to identify possible changes in their trophic ecology.

Keywords: Southern Ocean; environmental modifications; trophic ecology; icefish; stable isotopes