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BOOK OF ABSTRACTS

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Use of carbon and nitrogen isotopes as chemical markers to distinguish regions with different degree and type of contamination in Argentinean lakes

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Stable isotopes have been used effectively in ecological studies to trace the impact of different components, like potential pollutants, on ecosystems, as well as to trace food webs. Coastal environments are often exposed to different anthropogenic contaminants that can cause evident differences in coastal ecosystems. For this reason the use of various organisms as an indicator offers an important ecological study (Rozic et al., 2014).

In this study, we measure $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values in various organisms (from primary producers to upper consumers) to understand the influence of the different anthropogenic activities on the environment and the possibility to distinguish regions with different degree and type of contamination, as well as areas of greater or lesser risk to food production.

Study site samplings were carried out during wet season (April 2014) after a massive rain event in three lakes in Córdoba, Argentina: San Roque, Los Molinos and Río Tercero lakes. San Roque Lake supplies drinking water to Córdoba, and is also intended for recreational uses. It is surrounded by cities and settlements which are not fully connected to public sewage system. Los Molinos Lake provides water to the Southeast of the city of Córdoba and is used for recreational activities and irrigation. In the surrounding agriculture dominantly corn and sorghum is produced. Río Tercero lake is the largest artificial reservoir in the province of Córdoba and used for water supply and industrial activities, as providing cooling water for a nuclear power plant.

We collected water, sediment, plankton, shrimp (*Palaemonetes argentinus*) and fish (*Odontesthes bonariensis*) from each lake. Stable isotope analysis was performed an Isotope Ratio Mass Spectrometer, connected with an elemental analyzer (both Thermo Fisher Scientific). Results showed distinct differences in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ between the investigated lakes that also identify lakes exposed to anthropogenic sewage. San Roque lake showed the highest $\delta^{15}\text{N}$ values, for all the samples, indicating the most prominent influence of sewage on the lake ecology. However, not all results can be unequivocally interpreted to date and repetition of sampling and measurements has to be performed to identify any possible influence of the rain event.