

What is the problem?

Environmental studies of water resources allow us to know the characteristics, quality and environmental dynamics of the waters contained in these reservoirs and the behavior of the many physical, chemical and biological factors; adding the hydraulic factors that affect water resources, as well as identifying factors that contribute to the eutrophication process and identify emerging contaminants that affect the quality of water for population use.

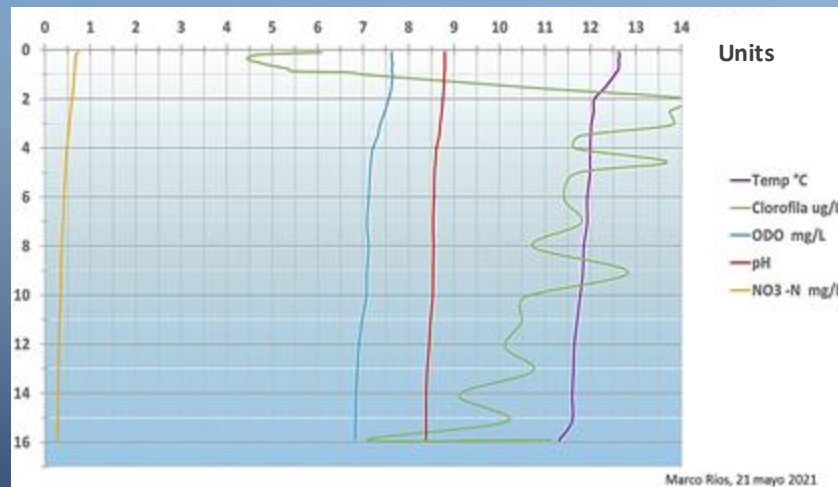
Methodology used

Based on the national protocol for monitoring the quality of Surface Water Resources, as well as protocols for on-board operation for the hydrobiological study and the water column of dams, safety measures before and after on-board operation and bathymetric survey of reservoirs.



Pañe Reservoir

Vertical profiles of field parameters in the water column of the Aguada Blanca dam, April 2019.



Marco Ríos, 21 mayo 2021



Reservoir monitoring

Pañe Reservoir

Results and conclusions

The results allowed us to know the environmental dynamics of each of the dams, to know the level of eutrophication, being the Chalhuanca and Pañe reservoirs the ones that present the highest degree of eutrophication, as well as to identify factors that contribute to the eutrophication process, one of them being aquaculture activities, finding that in the reservoirs that contain a high number of active floating systems for raising trout, they present a greater contribution of organic matter and nutrients to the water.

Likewise, another factor is the volumes of residual waters (dead volumes), which are masses of water that, because they remain below the levels of the discharge gates, cannot be evacuated from the reservoirs. They occur in three of the six reservoirs under study, which are: El Pañe, Pillones and El Fraile, and to a lesser extent Bamputañe; these "dead volumes" accumulate many substances such as nutrients, metals and forms of resistance and reproduction of certain algae.

Importance

The high Andean water bodies are considered as fragile ecosystems, the water resource of the reservoirs is unstable in the face of shocking events of an anthropogenic nature. Aquaculture is constituted as one of the activities developed by the high Andean communities for their economic sustenance; keeping a balance between the development of this activity and the nutrient load capacity of the system where it is carried out. Thus, it is highly important to develop policies to regulate anthropogenic activities and develop healthy technologies in order to protect the water resources intended for population use.

Bathymetric model of the Aguada Blanca dam, SEDAPAR 2018.

