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Abstract

Water and sediment quality in the lentic systems of the Central Andes of Peru evaluated by multimetric indices

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Abstract:

The quality of water and sediment in Lake Chinchaycocha was evaluated using multimetric and contamination indices. Water and sediment samples were collected from 10 sampling sites during the rainy and low water periods. In order to detect water quality using the CCME WQI, physical-chemical indicators and heavy metals were determined. The biological quality of the water was determined using the Shannon-Wiener index. The CCME WQI rated good quality water, except for the LCh1 site. The water quality determined by the Shannon-Wiener index qualified as moderate and extremely contaminated water. The cluster analysis grouped the sampling sites into two clusters with similar characteristics. The PCA presented a total variation percentage of 76.07%. With respect to sediment quality, the decreasing order of the mean value of Fe> Cu> Zn> As> Pb> Cd> Cr in the three sampling sectors followed this trend. The CF qualified as a low, moderate and considerable pollution factor. The PLI revealed that there is no appreciable contamination with these metals. Therefore, this study provides an updated state of the water quality and sediment of Lake Chinchaycocha, using different indices and multivariate techniques.

Biography:

Biologist, Master Scientiae in Biotechnology, Doctor in Environmental Sciences and Sustainable Development, associate professor at the Faculty of Human Medicine of the Universidad Nacional del Centro del Peru, with experience in research on continental aquatic ecosystems. Her current research focuses on monitoring and evaluation of the quality of the aquatic environment, environmental impacts, environmental and human risk assessment for exposure to heavy metals. Currently, she is the author of several publications in various journals and is the director of the Research Center for Medicine at Altitude and Environment and a researcher for the National Council of Science, Technology and Technological Innovation of Peru.

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