

Water chemistry and trophic evaluation of Lake Albano (Central Italy): a four year water monitoring study

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ABSTRACT

The crater lake Lake Albano is an increasingly diminishing water resource in terms of volume, the lake level has dropped more than four meters since the 1960s, and water quality resulting from elevated levels of nitrogen and phosphorus. The area of the lake, and the volcano as a whole, is also considered to be geologically hazardous due to continual shallow seismic activity, gaseous emissions and hydrothermal activity. Therefore, most research has been focussed on the geological aspects of the Albano lake system, whilst long-term limnological studies have been lacking. A meromictic classification was given to the lake, but this was based on one year studies of the surface water only. Presented and discussed are the results of a water chemistry and biological study of the full depth profile of Lake Albano from 2004 to 2008. During winter 2005-2006 the lake underwent a complete overturn, resulting in an influx of nutrient rich hypolimnetic water into the upper productive layers and oxygenated epilimnetic water into the deepest water layers. The effect of full overturn on the phytoplankton community is described and compared with those of meromictic years. The interplay between natural and anthropological processes on water quality and water usages is also discussed.

Key words: Volcanic lake, meromixis, eutrophication, chemical precipitation, water level, water quality
