


Water Quality

Authors

[Authors and affiliations](#)

Pablo Pastén , Alejandra Vega, Katherine Lizama, Paula Guerra, Jaime Pizarro

Chapter

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Abstract

Water quality in Chile is characterized by diverse hydrochemical environments and their interaction with human activities and natural factors. The main water monitoring network is operated by the DGA (Dirección General de Aguas) with 1013 water quality monitoring stations for surface water, groundwater, rural drinking water systems and lakes. Boron, electric conductivity (a proxy of dissolved salts) and low pH are critical parameters in the North Macrozone. High concentrations of arsenic and copper are found throughout the North and Central Macrozones, whereas nitrate is a concern throughout the Southern Macrozone. Lakes and reservoirs exhibit a wide span of chlorophyll “a” (from oligotrophic to hypertrophic), mainly attributed to diffuse pollution, while they rarely show high concentrations of metals and metalloids. Out of the 101 watersheds defined by the DGA, only five have ambient water quality standards in place, highlighting the urgency to expand this number to protect valuable and pristine freshwater ecosystems. Over the last few years, the Chilean water quality monitoring network has seen great improvements; however, there is an urgent need to develop quantitative and conceptual water quality models to purposefully convert data into information. The “black box” statistical description of hydrochemical parameters has limited use to inform science-based decision making. Water quality is a key determinant for human and ecosystem health in urban and rural settings in Chile; thus its knowledge and protection should promote local and global sustainable development goals.