

The complex task of maintaining water quality in Mediterranean basins: Case study, Llobregat River basin, Spain

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Abstract Many river basins in Southern European (SE) countries suffer common freshwater quality and management problems. Although in recent decades there has been an improvement in wastewater treatment and in the number of people connected to treatment facilities, the eutrophication problem has not decreased, and emerging contaminants are becoming a new social concern. The irregular Mediterranean hydrology, wastewater discharges from highly populated areas and the extensive use of water resources for agriculture are the main environmental pressures of Mediterranean basins where maintaining adequate water quality, and good environmental status, while providing a reliable water supply, is a difficult task. In many of these basins water scarcity and long drought periods affect river flows and, consequently, the dilution and self-purification capacity of water bodies. Furthermore, diffuse and groundwater pollution by agriculture, and the massive use of water resources by irrigated agriculture are other main factors in river and aquifer water quality. However, new water policies, including the European Framework Directive, are demanding more environmental protection for our water bodies. In this paper we explain the common stressors of the environment and water quality in these southern countries' basins. As an example of such basins we present the Llobregat River basin (LRB) case, in Spain. The importance of this river is that it is the main water supply resource of several cities, including Barcelona, and the main receptor of effects of different human activities. Water quality is compromised by human environmental pressures and low river flows in scarcity periods.

Key words water quality; water quantity; Southern European countries; Mediterranean basins; Llobregat River, Spain