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Environmental effects of WWTP discharge on the quality of the receptor river

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ABSTRACT

The aim of this study was to examine the water quality of a small stretch of the Po River in the Piedmont region (northern Italy). Along this stretch the wastewater treatment plant (WWTP) located in Castiglione Torinese treats a large pollution load derived from Turin's metropolitan area (about 2 million population equivalent), and discharges it into the Po River. The objective of the study was the definition of the environmental impact produced by the Castiglione Torinese WWTP on the water quality of the river, based on various hydrological conditions, and to recommend possible interventions on both the point and diffuse loads. In order to obtain this result the different loads in terms of sources, destination, and effects of the emitted pollutants were characterized. The obtained results show that the environmental status of the Po River is only minimally influenced by the Castiglione Torinese WWTP discharge, and hence the necessary intervention would be on the diffuse load rather than the treatment plant.

Keywords: Water quality; Flow rate; Wastewater treatment plant; Pollution load

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