Río de la Plata (Argentina) coastal estuarine system: phytoplankton composition and water quality assessment

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Río de la Plata is a large temperate coastal plain estuarine system, located in South America between Argentina and Uruguay, with an area of 35500 km². The freshwater zone of Argentinean coast of Río de la Plata, known as Franja Costera Sur, has great importance from a socio-economic perspective, with 12.8 million people living in Buenos Aires city and its metropolitan area. The high urbanization and industrialization level that concentrates on the inner zone of the estuary generates an input of pollutants that pose multiple threats to both, the biota and human health. Among these pollutants, nutrients and organic matter enter in the system through the waterways that cross the coastal cities, and the poorly treated effluent sewages. Their effects have been more evident in the past few decades, manifesting themselves with increasing trophic changes and the development of more frequent cyanobacterial blooms.

In this sense, changes in the phytoplanktonic composition are important indicators of the ecological condition and environmental health. During the last years, studies regarding phytoplankton were focused on exploring the structural and functional responses of the assemblages of the freshwater zone to the environmental changes, to assess the water quality and ultimately contribute to the decision making process required to improve the environmental status and the resource quality.