

Hydrological behavior of coastal lagoons associated to wetlands, an example from southernmost bahía Samborombón (Argentina).

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Coastal wetlands are located at a critical interface between the terrestrial and marine environments and are ideally positioned to reduce impacts from land-based sources. At the southern region of Bahía Samborombón (Argentina) the wetlands includes several small coastal lagoons developed inside of a sandy spike. The main object of this work is to analyze the hydrological behavior of the lagoons evaluating their role in the maintenances of the wetland. In order to do this, satellite image analysis was performed to identify the marshy areas, drainage features, morphology and connections of the lagoons, both with the tidal flows from the Río de la Plata estuary and from the Argentine Sea. Field surveys were carried out in one of the lagoons to define their geological and geomorphological characteristics. After that, a monitoring network was designed for sampling the superficial and the underground water, additionally electrical conductivity and pH of the water were determined in situ. In all the water samples extracted the content of majority ions was determined by standard methods. Complementary, sedimentological and malacological aspects were observed at several stations in the lagoon. The obtained results allow us to recognize that the tidal flow that enters from the sea, at least in the studied lagoon, is the main hydrological sustenance of the wetland. This flow enters mainly using one tidal channel which connects (in a semi-permanent way) the sea with the lagoon during extraordinary tide and storm events. During low tide the lagoon loses connection and the drainage towards the sea is scarce. The tidal water that accumulates in the lagoon is subsequently evaporated causing an increase in the salinity of the surface water to values higher than the sea. Groundwater that accumulates through the infiltration of rainfall in the sandy sediments of the spike also discharges to the lagoon and supports the wetland surrounding the coastal lagoon. This flow, even when it has less magnitude than the tide, is constant and locally causes a decrease in the salinity of the shallow groundwater at the margins of the lagoon. The results obtained, although preliminary, provide data in areas not yet studied where coastal wetlands sustain ecological reserves of ecological importance for the region.