

Hydro-Sedimentological Evaluation in Itajurú Channel-Araruama Lagoon-Rj, Due Superelevation of the Sea Level by Climate Change

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Abstract : The Itajurú channel, located in the Eastern side of the Araruama lagoon, Rio de Janeiro state, is the one who makes the connection between Araruama lagoon and the sea. It is important to understand the hydrodynamic circulation of the location and effects of the sedimentological processes, and also estimate of the hydrodynamic and sedimentological processes in the future after the sea level change due to effects of climate change. This work presents results of a study about sediments dynamics in the Araruama lagoon focusing on the Itajurú channel region considering the present mean sea level and a foreseen sea level rise of 0.5 meters due to climate changes. The study was conducted with the aid of computer modeling for hydrodynamic and morphodynamic in SisBaHiA®. The results indicate that Araruama lagoon is composed by two hydrodynamics compartments; one is dominated by the action of the tide between the entrance of the channel and the strait of Perynas, and another one by the action of wind in narrow region between strait of Perynas and western extreme of the lagoon. With sea level rise, the magnitude of current velocities and flow rates is increased and consequently flow of sediment transport from upstream to downstream of Itajurú channel is increased and has more effect in the bridge Feliciano Sodré.

Keywords : hydrodynamic, superelevation, sea level, climate change

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