# Analysis of the Effectiveness of the Salinas de San Pedro Salt Marsh to Purify Polluted Water of Los Angeles/Long Beach Harbor

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Marshes are known for their ability to filter pollutants, excess nutrients and disease-causing organisms from freshwater surface runoffs (Vernberg, 1993). This study evaluates whether similar purification processes take place if polluted water enters the marsh from the ocean via tidal motion. Water samples were collected at the Salinas de San Pedro Salt Marsh during rising tide (flood current into the marsh) and receding tide (ebb current out of the marsh). Dissolved oxygen (DO) and Fecal Indicator Bacteria (FIB) are chosen as main indicators of water cleanliness (USEPA, 2023), (Stein et al., 2007). Cleaner water is expected to have higher DO content and lower FIB count. The hypothesis is that the samples collected during the ebb current contain higher DO contents and lower FIB numbers compared to samples collected during the flood current, therefore showing that saltwater marshes purify polluted sea water via tidal flow. Eighty water samples were collected at the Salinas de San Pedro Salt Marsh from September to December of 2023. DO has been measured in all samples. In addition, sixteen samples were analyzed for a FIB count. A strong correlation between higher DO numbers and ebb current was observed. The FIB numbers were observed to decrease at ebb current, with stronger correlation evident during rainy days. Both the DO and FIB measurements appear to support the hypothesis.

**Awards Won:**