
Sediment Composition in Texas Bays Related to Inflow Gradients

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ABSTRACT

A long-term study has been conducted along the entire Texas coast to determine the role of freshwater inflow gradients in driving sediment properties of bay bottoms. Nutrient deposition refers to the amount of carbon, nitrogen, and total carbon that becomes buried within an estuarine system; the buried nutrients become lost to the normal cycle present in the estuarine system. Deposition analysis refers to and requires data from long core depths to at least 1 m long. The 1 m deep cores were analyzed to show carbon and nitrogen content for all estuaries and values were further compared to confirm or disprove a consistent rate at which nutrients is deposited and buried. In addition to the long cores used for nutrient deposition analysis, short cores (10 cm deep) from the same estuaries and bays were used to analyze surface sediment and sedimentation rates over time. The objective was to find the similarities of sedimentation between stations within estuaries and then between estuaries. Once analyzed the data showed the estuaries having silt and clay dominating most stations. The transportation of sediments by rivers are entrained in estuaries when deposited. The irregular sedimentation percentages are believed to be caused by storm surges. Sedimentation rates were not assumed to be consistent along the coast and helped to define the benthic habitats along inflow gradients.