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Annual Review

Salt-marsh processes: A Review

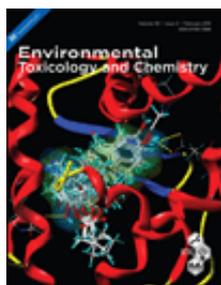
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Author Information

Belle W. Baruch Institute for Marine Biology and Coastal Research, University of South Carolina, Columbia, South Carolina 29208

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- Abstract
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Abstract

Salt marshes are found between the high tide and the near-shore sublittoral zones along the coasts and up estuaries of continents, primarily in the temperate zone. They flourish in regions where much silt is carried to the coastal regions by rivers or where geological processes favor erosion and suspension of silt. Salt marshes have multiple ecological and economic values. They have a high rate of primary productivity; provide habitats for many marine species (including commercially important organisms); assist in flood and erosion control; lessen the effects of stormwater surges; and improve water quality by filtering pollutants, excess nutrients, and disease-causing microorganisms. In addition, this habitat is used for recreational and educational purposes by millions of people who spend millions of dollars. Although the myriad functions and uses of this habitat attest to its tremendous importance, legal protection of salt marshes varies significantly throughout the world. Salt-marsh processes are governed by the interactions between “natural” physical, chemical, geological, and biological factors. Of importance to ecotoxicologists and other scientists is understanding the intimate interaction between these various abiotic and biotic factors. This paper reviews the functional processes of salt marshes and discusses recent research advances under the following major headings: (a) physical, geological, and chemical factors; (b) biotic factors (including productivity of vascular plants, phytoplankton, epibenthic algae, and attached macrophytes; secondary production of primary and secondary consumers; and decomposition; (c) material cycling, biogeo-chemical cycling, and nutrients; (d) long-term changes; and (e) interaction with adjacent ecosystems.

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