

US EPA ARCHIVE DOCUMENT

## LINKAGES BETWEEN WATERSHED DEVELOPMENT, STREAMS, AND RECEIVING SALT MARSHES

Deleted: Contribution # AED-07-047

<sup>1</sup>Lussier, S.M., <sup>2</sup>da Silva, S., <sup>1</sup>Wigand, C., <sup>1</sup>USEPA, Narragansett, RI; <sup>2</sup>Nelson, Pope and Voorhis, LLC, Melville, NY

Land use and anthropogenic activities in watersheds affect biological, chemical, and physical conditions in streams and receiving coastal salt marshes. In six Rhode Island watersheds with residential land use ranging from 17–59%, we compared indicators of biological integrity and riparian-habitat condition of streams with analogous indicators of their receiving coastal salt marshes. We used the Rapid Bioassessment Protocol to assess the wadeable streams and field transects to measure vegetation structure, species richness, and extent of invasive species. Dissolved nutrients were measured in streams and salt marshes. Results showed that increased residential land use in watersheds significantly ( $R^2 = 0.81$ ,  $P < 0.05$ ) increased nitrate concentrations in streams. Residential development and increasing nitrogen loads had a significant adverse effect on plant and animal species richness and habitat condition in streams, riparian zones, and salt marshes. By providing information on habitat degradation upstream and associated salt marsh degradation, our results can help us understand the relationships between conditions in watersheds, their streams, and receiving salt marshes.

*Keywords:* Stream assessment; salt marshes; land use; riparian zones; urbanization