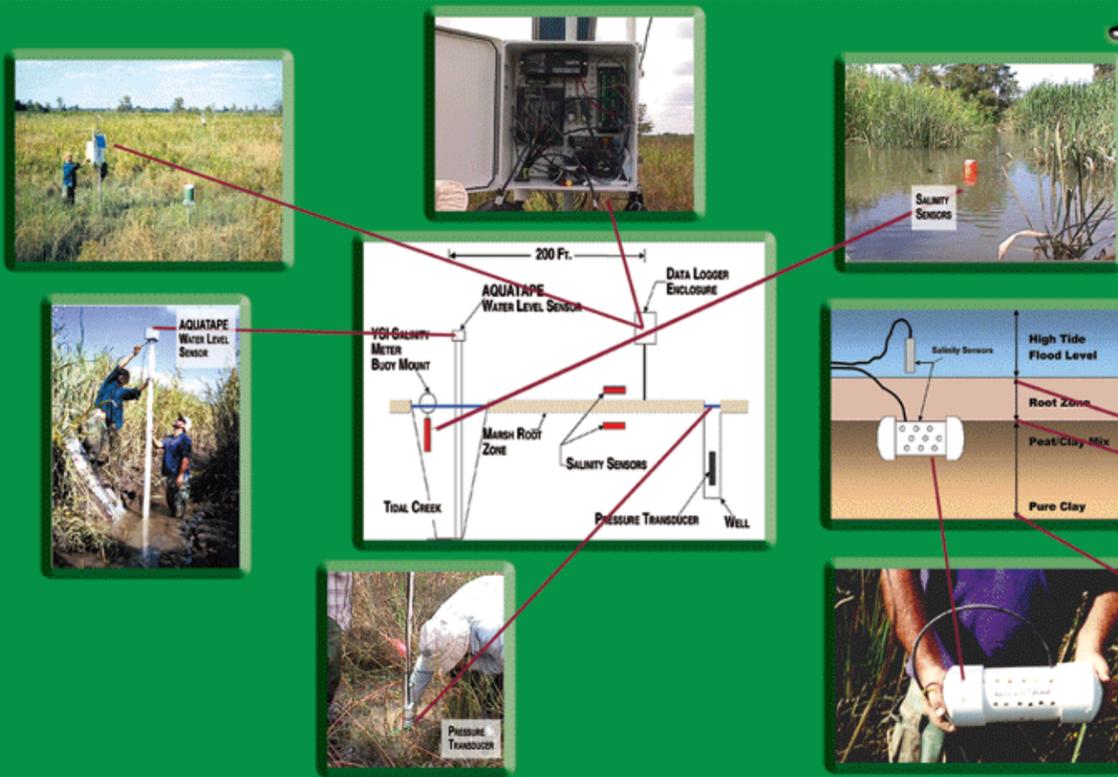


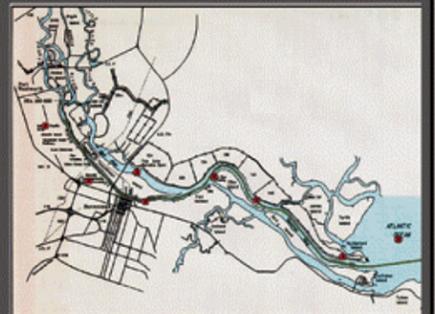
TIDAL WETLANDS STUDIES

Both GPA/ATM and the USFWS conducted field studies to identify changes in vegetation that occur seasonally and as a result of the drought. The studies measured salinity and water levels in the tidal creeks and on the marsh itself. Monitoring was performed from 2000 through 2002.



SCREENING OF ALTERNATE SITES

One critical issue is how far upstream any harbor improvements would need to be constructed. The Tier I studies discussed only improvements up to GPA's Garden City terminal. Tier II expanded to eight locations where new or expanded terminals could potentially handle some of the expected cargo. These sites are being evaluated and a screening will be performed to identify the most feasible site or sites.



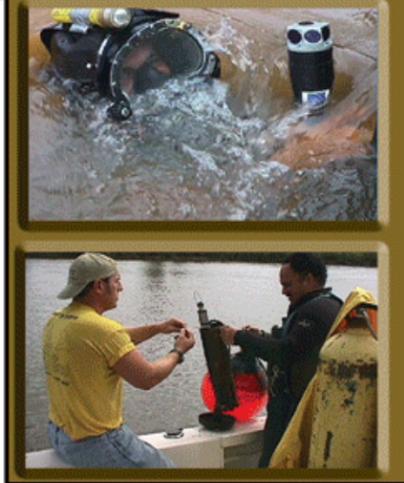
HYDRAULICS & SALINITY STUDIES

The foundation of the predictive studies is development of computer models that will predict the physical effects of proposed changes in the estuary. A comprehensive data collection effort was conducted in the summer of 1999, adding to the data set collected in 1997. Salinity and water levels were measured at numerous points in the estuary. Water velocities and current direction were recorded. The City contributed data for the industrial and municipal discharges that were occurring at the time. EPA, USGS, the states, and the City of Savannah oversaw the data collection effort. Three computer models are being developed: a Hydrodynamic and Salinity Model; a Dissolved Oxygen Model; and a Chloride Model. EPA intends to use the completed models for its total maximum daily load (TMDL) work in the harbor.

MARSH SUCCESSION MODELING

The purpose of these activities is to convert predicted changes in salinity or water levels in the river to changes expected in the wetland vegetation. USGS hydraulic modeling experts are developing a linkage between the salinity concentrations in the rivers with concentrations within the root zone of the marsh plants. Wetland experts at a different USGS office are determining what causes specific wetland species to grow on a given site. They are evaluating such things as the soil type, the salinity of the tidal waters, the depth and duration of tidal flooding, and the distance of the site from a tidal creek. Those relationships form the basis of a GIS model that ATM is developing. That model will be used to predict what plant species or community would occur at a site if changes are made to either salinity in the creeks or to the tidal prism. A prototype of the GIS model has been developed and used to observe changes that occurred in the estuarine marshes during the recent drought.

SALINITY LINKAGES



FISHERY STUDIES



In October 2002, GPA completed a two-year study that examined the types of fish that live in the Savannah River estuary. The work was performed by the U.S.G.S Fish and Wildlife Cooperative Research Unit in Athens, Ga., and the South Carolina Department of Natural Resources. The researchers sampled throughout the estuary to identify seasonal changes in species and differences that occur along the salinity gradient moving up the estuary. Samples were collected in the rivers, along the river edges, in tidal creeks, and in the marshes

MARSH VEGETATION MONITORING

Both the USFWS and GPA/ATM performed studies on marsh vegetation. The USFWS relocated 1-meter samples of marsh vegetation to other sites in the estuary and monitored their growth to determine how they would be affected by different salinity conditions. GPA/ATM performed studies at a nursery to determine how various levels of salinity affect the growth of the plants and the types of plants that would germinate.



Savannah Harbor Expansion Project Studies

Cultural and Historic Resources—CIS Georgia Impacts—CIV Fort Jackson Impacts—Impacts on Adjacent Properties—Environmental Justice—Multiport Analysis—Available Infrastructure—Alternate Methods to Improve Transportation Efficiency—Alternate Sites for Terminal Operations—Consistency with Coastal Zone Management Plan—Estuarine Impacts—Port Source Mining Zones

River-Fishery Management Plan—Anadromous Fish Populations—Other Fish Species; red drum, American shad, river herring—Essential Fish Habitat (EFH)—Endangered Species Act Compliance—Management of Contaminated Sediments—Beach Erosion—Channel Slope Erosion—Fort Pulaski Erosion—Fecal Coliform on Beaches