

Water quality analysis of Fort Pulaski National Monument

Fort Pulaski National Monument is located in coastal Georgia along the Savannah River, approximately one mile from its junction with the Atlantic Ocean. Two islands, which before human intervention were primarily salt marshes, comprise the 5,200-acre (2,100-ha) site. The monument protects some of the most pristine resources in the area, such as Class 1 waters that are used for recreational harvest of shellfish. However, these waters are potentially threatened. Contamination from industrial sources upstream in the vicinity of metropolitan Savannah includes wastewater treatment pollutants, chemical producers, a natural gas processing facility, and a paper mill. In addition a nuclear weapons production facility is farther upstream. The Savannah River Site is notorious for contamination of the Savannah River and its tributaries, for example, during a tritium spill in 1991.

Industrial development in the Savannah area has, in turn, fueled development of port facilities. Commercial ship traffic requires substantial dredging in the main channel of the Savannah River to sustain the ever increasing depth requirements. During the dredging process contaminants sequestered in the sediments are suspended in



the water column, threatening the monument and surrounding areas with reintroduction of contaminants. A proposal by the U.S. Army Corps of Engineers and the Georgia Ports Authority

to increase the dredged depth of the shipping channel in the Savannah River to 50 feet mean low water (MLW) from the current depth of 42 feet MLW threatens to exacerbate the problem.

In 2001 and 2002 the park received Natural Resource Preservation Program funding for small parks and contracted with Savannah State University to conduct a water quality analysis of the 4,800-acre (1,940-ha) salt marsh estuary within the monument. The goal of this research was to acquire baseline chemical data necessary to evaluate the ecological health of water resources at the monument. Investigators designed the project to evaluate the levels of chemical pollutants, including heavy metals and organic compounds, in marsh-estuarine sediments and oyster tissues. The study used sediment, oyster, and water samples acquired from nine locations within the monument's boundary. Investigators focused data analysis and interpretation on problems that would be of immediate concern to park management.

The results of the study indicated that chemical contamination has caused no significant impact of waters within the monument. Of utmost significance, however, is that park managers now have substantial baseline data regarding the health and condition of the salt marsh estuarine environment. Scientific information now exists to adequately evaluate changes over time in the ecological health and water resources of Fort Pulaski National Monument.

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