CSREES National Water Quality Program

Title: Coastal Eutrophication and Productivity of Clams and Oysters

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Organization: University of Florida

State: FL **Region:** Southern **Year of Funding:** 2001

Theme: Watershed Management

Situation: The focus of this study, the Suwannee River, contributes high levels of nutrients to the region of the Gulf of Mexico known as the Big Bend. Recent tests indicate that nutrient levels are on the increase due to anthropogenic activities. These observations have precipitated widespread concern about the potential consequences of cultural eutrophication for the ecological health and economy of the Big Bend, which includes extensive oyster harvesting and a newly emergent clam aquaculture industry.

Objectives: The objectives of this study are; a) to determine the correlation between the volumes and nutrient concentrations of Suwannee River outflow and the abundance and composition of plankton, b) to establish a direct link between nitrogen and carbon in the Suwannee River and production of clam and oyster biomass, c) to determine the effect of plankton abundance and composition on the function, growth and survival of oysters and clams.

Methods: A combination of field and laboratory research will be used to establish the relationships between variations in nutrient loading, plankton dynamics and the growth and survival of clams and oysters. The field data collected, along with the results of experimental analyses will be used to develop model relationships that define sensitivity to changing conditions.

Partnerships: This project has supported the efforts of the Sea Grant Extension Service program on Aquaculture.

Research: The project's research team has formed strong working relationships with several state and federal water management agencies interested in the region, including the Suwannee River Water Management District, Florida Wildlife Conservation Commission and USGS. The team is also working closely with the clam aquaculture industry in conjunction with Sea Grant Extension and the Florida Department of Agriculture.

Resources: The initial results of this project were used to help justify the establishment of a USDA-funded network for remote monitoring of critical environmental conditions in key production areas for seafood.

Results: The initial results of this on-going study have demonstrated a relationship between changes in nutrient loading from the Suwannee River and phytoplankton abundance. These and other preliminary results have been shared with members of the clam aquaculture industry through several workshops sponsored by Florida Sea Grant. Two peer-reviewed publications in scientific journals have already been generated using some of these results.