BOARD OF COUNTYCOMMISSIONERS
JEFFERSON COUNTY, FLORIDA

THE KEYSTONE COUNTY-ESTABLISHED 1827
450 WEST WALNUT STREET; MONTICELLO, FLORIDA 32344
PHONE: (850)-342-0287

Benjamin Bishop	John Nelson	Hines F. Boyd	Betsy Barfield	Stephen Walker
District 1	District 2, Chair	District 3	District 4	District 5

JEFFERSON COUNTY RESTORE ACT PROJECT PROPOSAL

Project Name: **Lower Aucilla River Hydrographic Survey**

Contact Information: Parrish Barwick, County Coordinator
450 West Walnut Street
Monticello, FL 32344
pbarwick@jeffersoncountyfl.gov PH: 850-342-0287

I. Eligible activities:

1. Planning assistance.
2. Promotion of tourism in Jefferson County and within Gulf Coast counties and region.
3. Restoration and protection of our natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of Jefferson County and the Gulf Coast counties.

II. Executive Summary of the Project

Background: The Aucilla River drains a large basin in South Georgia and North Florida, including the waters from its spring-fed Wacissa tributary, into the Gulf of Mexico. The proposed project involves the lower portion of the river near its confluence with the Wacissa where the river intermittently flows underground through the karst subsurface associated with the Florida Aquifer before flowing on out into the Gulf following the prehistoric submerged channel of the river. This area is unique not only due to the river's alternating underground flow, but also due to the fact that Florida's oldest dated evidence of human activity have been recovered from sinkholes in the river bed in this area, and due to the fact that the river bed contains evidence of past climate and climate changes from thousands of years ago including entire megafaunal animals. (The reason for the diversity of artifacts in this area is that after the last ice age when sea level was much lower, the sinkholes now located in the bed of the river were some of the few sources of fresh water in the region. Thus, both human and wildlife activity was centered in the vicinity of the sinkholes.) In additional to the historic and scientific significance of this area, it has environmental and recreational importance. The area has great biological diversity and a portion of the Florida Trail runs along several of the underground portions of the river, passing several natural sinkholes.

The Problem: Despite this uniqueness, the hydrography of this river channel has never been mapped. The lack of that hydrographic data for this area restricts the development of a sound hydrological model of water flow which would allow calculation of minimum flows and levels for future water management for the Aucilla/Wacissa watershed and studies of water quality for the water flowing into the Gulf of Mexico (and also back with tidal action). Further, it restricts identification of the most promising areas for archeological research and other scientific studies of the area.

The Solution: The proposed project involves a hydrographic survey to map the water-related features of the area. The area to be surveyed includes about 7 river miles of intermittent open/underground channel, about 5 miles of the current open channel currently located adjacent to the Gulf, and an additional 5 miles along the submerged prehistoric channel of the river out in the Gulf along which numerous archeological artifacts have been found. The project will include establishing a series of precise bench marks along the project to control the bathymetric survey, operation of several water level recorders to gather data regarding the flow of water through the karst subsurface where the river goes underground, and high-resolution multi-beam (or equivalent technology) bathymetric surveys of the river bed controlled by real-time GPS. The bathymetric survey would result in a "point-cloud" of points defining the bed of the river. The resulting data from that survey would be merged with existing digital maps of the surrounding floodplain previously conducted by the Suwannee River Water Management District using airborne light detection and ranging (LiDAR) surveys. The net result would be a complete digital model of the hydrography of this complex area which would allow creation of a hydrological model of the Aucilla/Wacissa watershed by the SRWMD.

III. Cost summary/budget, matching/cooperative funds, cooperative support from governmental or other agencies.

The planning-level cost estimate for this project is:

Management and supervision	$ 20,000
Contracted field work	$120,000
Contracted post processing	$50,000
Planning level estimate total	$190,000

IV. Timeline for project, technical and environmental feasibility

The total time from approval to completion is anticipated to be 9 calendar months. The development of detailed scope of services and procurement of a consultant is anticipated to take 3 months. The field work phase is anticipated to take 4 months depending on weather conditions and the post processing is anticipated to take 2 months.

V. Qualifications of the Submitting Entity, the financial feasibility/sustainability of the project and probability of success, etc.)

The Suwannee River Water Management District is responsible for the management of the surface water, aquifer and the surrounding drainage basins. The district has a well-qualified technical and scientific staff which could oversee this project and fully coordinate its results with federal, state and local organizations that have an interest in the data and finished outputs.

VI. Anticipated results of the project:

The anticipated benefits of this project are as follows:

(1) It will provide data for the development of a hydrological model of water flow through the lower Aucilla. This will allow for more precise calculation of minimum flows and levels for future water management and for studies of water quality for the water flowing into and from the Gulf of Mexico through the Aucilla/Wacissa watershed.

(2) When combined with the existing digital elevation model of the flood plain, it will provide a complete digital model of the area and thus allow identification of the most promising areas for archeological research.

(3) It will provide a basis for studying how sea levels and the climate have changed in the past and thus allow prediction with greater accuracy of future changes and resulting impacts.

(4) It will provide data for hydrologic, climate and archeological studies that will attract geoscientists from the entire world for additional studies and thus have a positive economic impact on the county.

(5) The existence of a detailed model of the area will also attract additional recreational hikers and boaters for exploration of the area.