

Audubon's
Everglades Science Center at Tavernier:

A 75 Year Legacy of Research and
Monitoring



RestoreFloridaBay.org

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Audubon's History in Florida Bay

Roseate Spoonbills, the iconic bird of the Everglades and Florida Bay, had all but disappeared when Robert Porter Allen, National Audubon Society's first Director of Research, moved to the Florida Keys and established Audubon's Everglades Science Center at Tavernier in 1938. Florida's known spoonbill breeding population had been reduced to only five nests on Bottle Key in Florida Bay.

Allen's early research helped set the science baseline for recovery of the species and understanding of its habitat needs for successful reproduction.



Audubon has completed research in Florida Bay for 75 years.

The Eyes and Ears of the Everglades

As Everglades restoration got underway fifteen years ago, the Everglades Science Center's focus evolved toward research needed to guide and measure the success of restoration and its impact on water and wildlife. Building on 75 years of experience and extensive knowledge of the back country, a disciplined research plan was implemented to collect and interpret data on water quality, fish, submerged vegetation, and wading bird trends in Florida Bay and the Southern Everglades. Data collection and monitoring is conducted at remote sites in Everglades National Park.

The monitoring and data collection conducted by the Everglades Science Center follows a Conceptual Ecological Model developed by the RECOVER program that organizes science to support Everglades restoration decision-making. The model links changes in freshwater flow to a decrease in submerged aquatic vegetation and loss of small prey fishes, which are an important food base for many higher-level predators including game fish, endangered crocodiles, Roseate Spoonbills and other wading birds. The model and data collection helps inform important decisions on Everglades restoration and water management operations.



Some sample sites have only been accessible by helicopter.

As noted, the Science Center's research covers four categories: hydrology, aquatic vegetation, prey base fishes and Roseate Spoonbills – the only Everglades science program looking at the entire paradigm of measurable changes. Many scientists use this data to study the results of the diversion of freshwater upstream in the Everglades as well as the benefits of the operation of new restoration projects on the Everglades wetlands and in Florida Bay.

This data is critical to making sound decisions related to Everglades restoration.

The collection sites are situated to detect ecological changes occurring as a result of restoration projects. Field researchers sample nine sites in some of the most remote locations in Florida Bay and the Southern Everglades. One of the most important research components is collecting prey fish samples. To get as exact a sample as possible, the researchers set traps in the mangrove fringe and marshes.

These traps, which take three days to operate, provide an exact count of the species and quantity of fish in the system. This data provides immediate and critical feedback to the agencies as they make operational decisions relating to water releases and canal stages. The data is the measure of the benefits of the hundreds of millions of restoration project dollars spent in the Southern Everglades and provides a guide for efficient operation. The data also helps agencies demonstrate the effectiveness of their actions.

This unique research serves as a credible source of information for decision-makers, agency staff, partners and the public. The rigor and consistency of the scientific information must be maintained in order for it to be reliable.

Audubon's Everglades Science Team

State Director of Research Dr. Jerry Lorenz leads Audubon's Everglades Science Team in Florida Bay. Six full-time researchers collect data throughout the year aided by interns and part-time techs. All boats and other equipment along with logistical support is provided by Audubon. Most, but not all, expenses are reimbursed through agency contracts.

A majority of the Center's funding is supplied through the RECOVER science program of the Comprehensive Everglades Restoration Plan—collaboratively funded by the South Florida Water Management District and the United States Army Corps of Engineers. Audubon's research is considered a top RECOVER research priority.

In addition to building on experience and knowledge, Audubon's Everglades Science Center provides substantial savings when compared to other monitoring programs of this type. It is probable that this research is more

cost effective as a contract than if it were conducted in-house by SFWMD or Everglades National Park staff. Audubon supplements the science center's cost and with the data and monitoring programs at up to \$200,000 per year.

As a non-profit, Audubon makes the most of limited resources and is flexible in conducting research programs.



It takes three field days to complete one sample at each research site.



Audubon has a 20 year history of researching fish in Florida Bay.

Two Projects: Measuring Everglades Restoration Success

C-111 Spreader Canal Western Project

In May 2012, the C-111 Spreader Canal Western Project in the Southern Everglades became the first Comprehensive Everglades Restoration Plan project to be completed.

Using detention basins and pumps, this new project increases freshwater levels near Everglades National Park and helps retain water in Taylor Slough, which flows to Florida Bay rather than seeping out of the park to the massive C-111 canal.

The C-111 Spreader Canal project will result in positive and measurable environmental responses.

Audubon's Everglades Science Team is unrivaled in our experience and capability to measure the ecological response of the project and provide the data necessary to assess its success.



The new C-111 spreader canal pump station.

Tamiami Trail Bridge

A historic milestone was marked for the Everglades as the first bridge section on Tamiami Trail was completed earlier this year, an Audubon priority for two decades. When natural patterns of water flow are restored, wildlife responds.

Audubon scientists have witnessed native Florida Bay species react positively to beneficial changes in water management practices. As water starts to move south, Audubon's Everglades Science Center will play a crucial role in monitoring and evaluating changes in the fragile ecosystem.



Restoration efforts should increase wading bird nesting.

As the most downstream ecosystem of the Everglades watershed, Florida Bay is the ultimate indicator for Everglades restoration success.

From the Comprehensive Everglades Restoration Plan 2012 RECOVER Update:

*"The condition of roseate spoonbills in northeastern (NE) Florida Bay appears to be improving while the condition of those in northwestern (NW) Florida Bay is declining. Nesting success in NE Florida Bay has improved greatly in recent years, probably due to favorable climatic conditions and to communication between the principle investigator (**Dr. Jerry Lorenz**) and operations managers at the South Florida Water Management District during nesting season. This communication results in fewer unnecessary disruptions in flow patterns to the foraging grounds in NE Florida Bay, leading to better foraging opportunities resulting in greater nesting success."*

[\(http://www.evergladesplan.org/\)](http://www.evergladesplan.org/)