

US EPA ARCHIVE DOCUMENT

FIELD REPORT: GULF OF MEXICO COASTAL WETLANDS ASSESSMENT PILOT SURVEY: SOUTH FLORIDA

Alex Almario (EPA) Tom Heitmuller (USGS), and Janet Nestlerode (EPA) traveled over 3000 miles by truck, boat, foot and swamp buggy, to sample **18** sites over only 14 days last month in mangrove and sawgrass prairie habitats in and around the Everglades for the Gulf of Mexico Coastal Wetlands Assessment Pilot Survey. This phenomenal field effort could not have been accomplished without the extensive collaborative efforts with several federal, state, academic, and non-profit organizations.

10,000 Islands

The first week of the trip was based out of Rookery Bay National Estuarine Research Reserve's (RBNERR) 10,000 Islands Field Research Station near Marco Island. Using this Field Station as a home-base, our GED field team visited survey sites near Naples, Sanibel Island, Everglades City, Charlotte Harbor, and Hendry County.

RBNERR Research Specialist Pat O'Donnell was instrumental in our

efforts and assisted during assessments of sites near the RBNERR Headquarters and in Fakahatchee Bay. He helped orient us to surrounding landscape and its past and present anthropogenic stressors, gave pointers for appropriate mangrove field attire, provided important sample storage space, and drove us to and provided logistics information on reference condition sites. He even took us to one survey site using the RBNERR mullet boat.



Encased in a "bug suit" Janet Nestlerode evades the pesky mosquitoes and no-see-ums while recording site data in a 10,000 Islands mangrove forest.



Rookery Bay NERR's 10,000 Islands Field Research Station near Marco Island. This 2 bedroom, waterfront cottage was where the field team called home for the first week of the survey (and was only \$25/night!)



Tom Heitmuller collects pore water from a stand of black mangroves at the Cat Claw Trail Reference Condition site near Rookery Bay.



Rookery Bay NERR's mullet boat with its motor cleverly located in a forward well. This arrangement makes fouling the prop in nets unlikely and is also convenient for RBNERR's monthly shark long-line and gill net surveys.

Trip Trivia:

- 3200 miles traveled
- 18 stations surveyed across 4 habitat types in 14 field days
- 250 water, sediment and plant samples collected
- 287 trees measured
- 3 cans of bug spray and 2 bottles of sunscreen used
- 200 lbs each of dry and wet ice for sample preservation and transport.



Sanibel Island & Charlotte Harbor



SCCF manages over 1300 acres of land on the islands. The majority of the research conducted at the laboratory is in collaboration with scientists in academia, local government, and state agencies and covers seagrasses, mangroves, harmful algal blooms, fish populations and shellfish restoration.

Sanibel Island: Dr. Eric Milbrandt, a Research Scientist with the Sanibel-Captiva Conservation Foundation, met our GED field team early on a Sunday morning to guide us to one of his long-term monitoring sites in the J.N. "Ding" Darling National Wildlife Refuge on Sanibel Island. This site served as one of the survey's reference condition sites in an

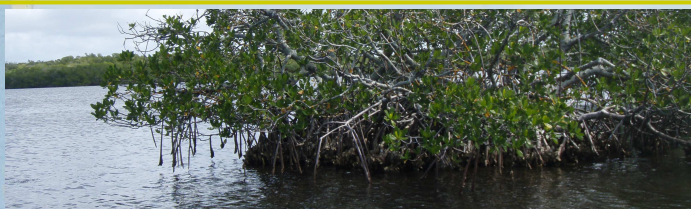
area impacted by impoundments and reduced water exchange with stunted mangrove stands. This integration of existing research locations as reference sites will allow us to evaluate results from our one-time site visits with other available long-term datasets and calibrate our assessment models.



Alex, Eric Milbrandt (SCCF), and Tom gear up for a morning mangrove survey at J.N. "Ding" Darling National Wildlife Refuge on Sanibel Island.



We often hiked through waist-deep water to access the survey stations.



Charlotte Harbor: The survey site near Little Pine Island in Charlotte Harbor was located deep within a mangrove island incised with inlets and ponds, which proved easier to transverse compared to the thick tangle of mangrove prop roots.



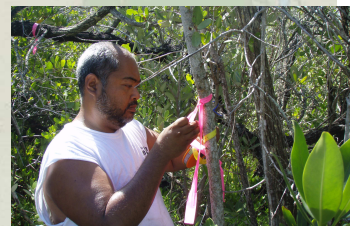
A densiometer was used to estimate the extent of canopy cover in forested sites.



Red mangrove prop roots encrusted with oysters.



One of the three manatees that swam up to our boat as we were returning from the Charlotte Harbor survey site.



Tree diameter was measured and used to estimate above ground biomass for woody species in forested wetland sites.



Along the Tamiami Trail

Big Cypress National Preserve: After much coordination with the South Florida Water Management District (SFWMD) research field crews and staff, the GED team was given access to a levee gate adjacent to Big Cypress National

Preserve near one of the survey sites. Unfortunately, even after driving several miles on the levee and using a 10' jon boat to cross a canal to get closer to the site, the site was deemed inaccessible. We were deterred by the impenetrable vege-

tation, the great distance to the site through that thick vegetation, and the large alligator eyeing our efforts adjacent to its mouse-hole pathway through that thick vegetation.



Crossing the canal adjacent to Levee 28. The thick vegetation made this site inaccessible, unless you were an alligator.



Tom disembarks GED's R/V Grey Goose for a day of mangrove surveys in Everglades National Park

Everglades National Park: Ten survey sites were located within the boundaries of Everglades National Park and all site visits were coordinated through daily calls to National Park Service (NPS) staff. A site in

the Shark Valley Slough district involved slough slogging (also known as swamp tromping) for 4 hours to go a mere 4 miles in heavy, ankle deep mud and muck, across sharp pinnacle rock, and through chest high sawgrass, dwarf

cypress forests, and nearly impenetrable hardwood hammocks. The mangrove sites in Everglades NP were visited mostly by boat launched out of the Flamingo district to access Whitewater and Florida Bays.

Florida Keys



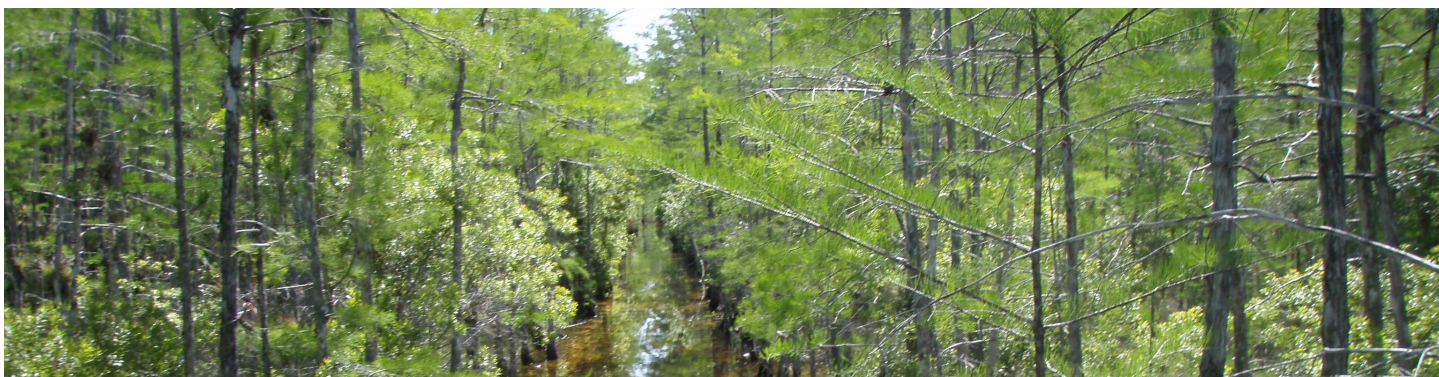
The GED field crew stayed at the University of Georgia's waterfront Keys Marine Laboratory in Key Largo.

Two survey sites were located in mangrove stands in the Florida Keys. Thanks to the cooperation of the US Fish and Wildlife Service at the Key Deer National Wildlife Refuge and efficiency of the

field crew, these sites were surveyed in just one day. A black mangrove forest on Islamorada and a red mangrove stand on Big Pine Key were easily accessible by paths accessed from the road.



Alex wades through seagrass beds as he approaches a survey site at Key Deer National Wildlife Refuge at the southern end of Big Pine Key.



Big Cypress National Preserve



Tom, Steve Schulze (NPS), and Alex on the swamp buggy used to access one of the survey's most remote sites in Big Cypress National Preserve.

The final site visited was in Big Cypress National Preserve and was only accessible by swamp buggy. A swamp-buggy is a custom-built, 8 foot tall, open-top monster truck with balloon tires and elevated suspension built to maneuver into the most remote recesses of the Ever-

glades. The swamp buggy was carried by flat-bed trailer from the Preserve Headquarters to an off-road vehicle trail in the Preserve.

It took us 2 hours traveling across bumpy, flooded, muddy trails through several miles of wet prairie, cypress strands, and hardwood hammocks to reach our

survey site. Along the way, Steve shared stories of the mysterious Everglades skunk ape, giant pythons, and his work on the Florida panther population survey. Unfortunately, we never did see a Florida panther even though the trail we followed was reported to be prime panther territory.



So why were we there?

USGS and EPA have partnered for this *Gulf of Mexico Coastal Wetlands Assessment*. This south Florida field work is part of a two-year regional pilot survey to develop, test, and validate tools and approaches to assess the condition of northern Gulf of Mexico (GOM) coastal wetlands. A multi-level, stepwise, iterative survey approach is applied at survey sites selected

probabilistically across wetland habitats delineated by the US Fish and Wildlife Service National Wetlands Inventory Status and Trends Program and contained within northern GOM coastal watersheds. As part of the site assessment, a Rapid Assessment Method (RAM), based on presence/absence checklists and other semi-quantitative and narrative metrics, is used to measure as-

pects of landscape, hydrology, and physical and biological structure and generate scores to reflect the condition of the site. In addition, measures of vegetation (e.g., above ground plant biomass for herbaceous wetlands, standard tree measures for forested sites, leaf tissue chemistry), water quality (e.g., nutrient concentrations, salinity, temperature, and pH of the pore and sur-

face waters), and soils N:P, cation exchange, grain size, bulk density, water holding capacity, microbial enzyme activity, and total organic carbon), are also collected from each survey site. Results of this survey will be used to evaluate methods that may be used in a national ecological assessment of coastal wetlands slated for 2011 by EPA's Office of Water.

