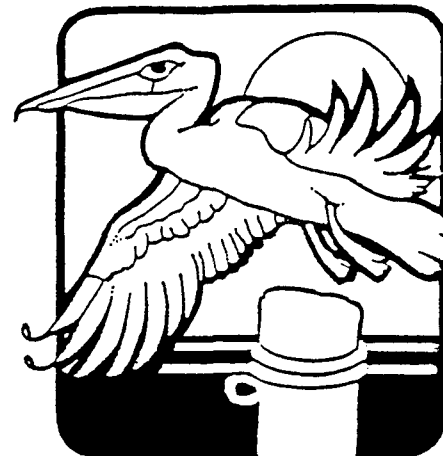


THE PELICAN POST

Weeks Bay
National Estuarine Research Reserve Newsletter



Research Sub-Committee Provides Recommendation and Review

The Research Evaluation and Coordination Subcommittee and several members of the Advisory Committee met and reviewed the proposals submitted for the Weeks Bay National Estuarine Research Reserve for funding by NOAA, ADECA and ADCNR with the recommendations from the subcommittee recommended the renewal of a project by Auburn University's Dr. Mark Bain. Also recommended for approval was a proposal by Drs. Jim McClintock and Ken Marion from the University of Alabama at Birmingham. Their work will involve the distribution of blue crab and their larval stages in the bay. Drs. Gary April and Don Raney of the University of Alabama with Dr. Will Schroeder of the Dauphin Island Sea Lab will develop a mathematical model of Weeks Bay. This is an outgrowth of Dr. Schroeder's completed hydrographic survey. All were funded and are underway.

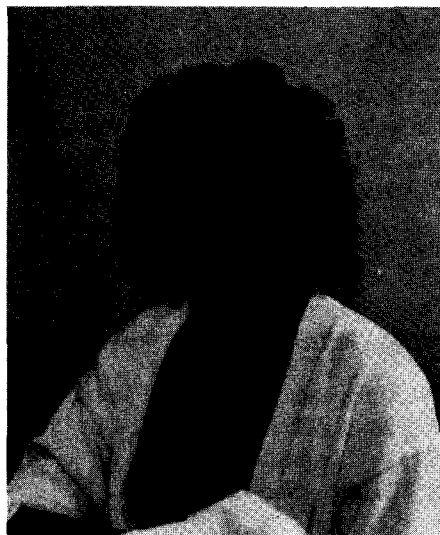
The subcommittee members, consisting of Bill Tucker, Brad Gane, Jimmy Jones, and George Crozier along with John Borom and Bill Hosking also developed proposed guidelines for future research initiatives. These proposed guidelines will be discussed before the Advisory Committee. These areas of emphasis were developed after review of the completed projects:

1. Functional relationships between components of primary productivity - especially the role of forested wetlands.
2. Nutrient ecology and their role in pro-

duction - the current emphasis on non-point sources makes Weeks Bay a prime site for such work.

3. Roles of estuarine characteristics in secondary production.

4. Transport phenomena: physical, chemical, geological and biological.



Pamala James, Interim Manager

Weeks Bay Has Interim Manager

Ms. Pamala James, a native of Bay Minette and long-time resident of Eastaboga, Alabama, has been named Interim Manager of the Weeks Bay National Estuarine Research Reserve. Ms. James received her B.S. in Marine Biology in 1985 from Auburn University and is defending her M.S. in Biology from the University of South Alabama this Spring.

Pam's thesis dealt with plant-animal relationships in grassbeds. Her strong background from Auburn University and the Dauphin Island Sea Lab makes her ideally qualified for the position. While at USA and the Sea Lab, Ms. James worked with Dr. Judy Stout, one of the foremost estuarine botanists on the Gulf Coast.

Most recently Ms. James was employed as an instructor in the Discovery Hall Program at the Dauphin Island Sea Lab. This "hands-on" educational experience will provide a good foundation for the future programs at Weeks Bay.

The manager will be expected to develop the physical facilities as well as educational offerings at the Reserve. In addition, Pam will provide direction, coordination and logistical support to the various research projects in Weeks Bay. The manager will be "all things to all people" for an unknown period of time.

Besides all that, Pam will be caretaker and gamewarden to this area - neither pleasant tasks. With hard work and support of all who are interested in the Weeks Bay Reserve, she will serve us all well.

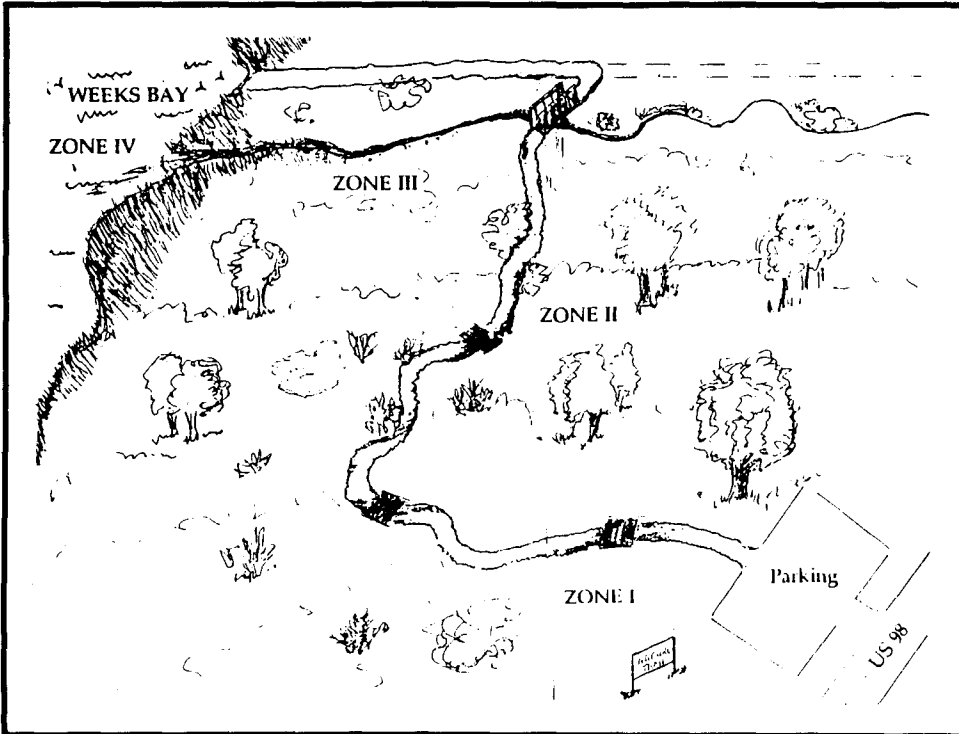
Funds for this newsletter and the publication are provided by the National Oceanic and Atmospheric Administration, National Ocean Service, Office of Ocean and Coastal Resource Management; and the Alabama Department of Economic and Community Affairs, Planning and Economic Development Division.

Editors

George Crozier
Marine Environmental Sciences Consortium
and

Bill Hosking
Auburn Marine Research and Extension Service

Nature Trail Dedicated! Improvement Underway



As part of Coastweeks, the national celebration of our coasts and coastal heritage, the nature trail was dedicated by Mr. Jim Martin, Commissioner of the Dept. of Conservation and Natural Resources. Mr. Martin spoke on behalf of Governor Guy Hunt. Dr. Don Hines represented Mr. Fred Braswell for the Alabama Department of Economic and Community Affairs. These are the two agencies responsible for funding and managing the Reserve. The guest speaker for the program was Mr. Bay Haas, City of Mobile, who was Director of the Coastal Area Board (the predecessor of ADECA in CZM Management) during the early development of the Weeks Bay National Estuarine Research Reserve.

The trail will be upgraded under a management contract with the Marine Environmental Sciences Consortium. George Crozier and Lloyd Scott, Director of the Environmental Studies Center, will redesign the guide, mark the trail and provide labels of key plants and communities.

Ongoing Research - WBERR

Estuarine Modeling - A Management Tool in the Coastal Zone. Principal Investigators: Gary April - Chemical Engineering, University of Alabama. Associate Investigators Donald Raney - Engineering Mechanics, University of Alabama; William W. Schroeder - Marine Science Program, University of Alabama. \$39,655 - Federal; \$45,328 - Non-Federal.

Relationships Between Estuarine Fish Community Structure and Physicochemical and Biological Habitat Characteristics (Yr.2) Principal Investigator: Mark Bain - Fisheries and Allied Aquaculture, Auburn University Associate Investigator Richard Wallace - Marine Research Extension Center, Auburn University \$29,503 - Federal; \$29,503 - Non-Federal.

Zooplankton Community Composition, Species Abundance and Grazing Impact in Weeks Bay, Alabama: Tidal, Monthly, Seasonal and Habitat Differences. Principal Investigator: Donald Stearns - Marine Environmental Sciences Consortium (now - University of Texas Marine Science Institute). \$24,396 - Federal; \$24,396 - Non-Federal.

The Habitat Utilization, Population Dynamics, Reproductive Biology and Trophic Ecology of the Blue Crab, *Callinectes sapidus*, in Weeks Bay, Alabama. Important Implication for Fisheries and Estuarine Management. James McClintock and Ken R. Marion, University of Alabama at Birmingham. \$14,547 - Federal; \$15,887 - Non-Federal.

Completed Research - WBERR

Stout, Judy P. 1987. Emergent Habitats of the Weeks Bay National Estuarine Research Reserve, Alabama. DISL Report 87-004. 38 pps.

Marion, Ken R. and John J. Dindo. 1988. Enhancing Public Awareness of Estuaries: A. Natural History Survey of the Weeks Bay National Estuarine Research Reserve. DISL Tech. Report. No. 150

Schroeder, W. W., Wm. J. Wiseman, Jr. and S. P. Dinnel. 1989. Wind and River Induced Fluctuations in a Small, Shallow, Tributary Estuary. Lecture Notes on Coastal and Estuarine Studies (M. Bowmann, ed.) in press.

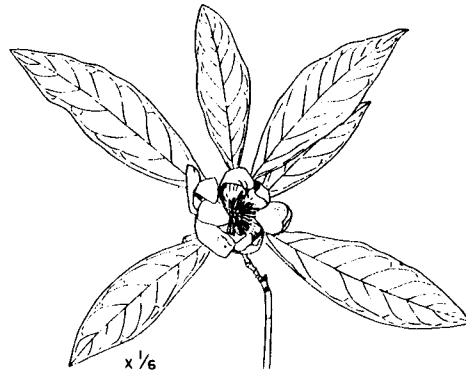


Reserve Now Tops Three Thousand Acres

The Damson Tract is a crucial acquisition for Weeks Bay because of the access it provides to Hwy. 98 at its northern boundary. The 360 acre tract was purchased from the Nature Conservancy which provided the non-Federal match by discounting the property by 50%. The National Oceanic and Atmospheric Administration of the Department of Commerce provided a cash grant of \$513,679 to buy the property outright.

Plants of the Weeks Bay Estuarine Research Reserve Nature Trail

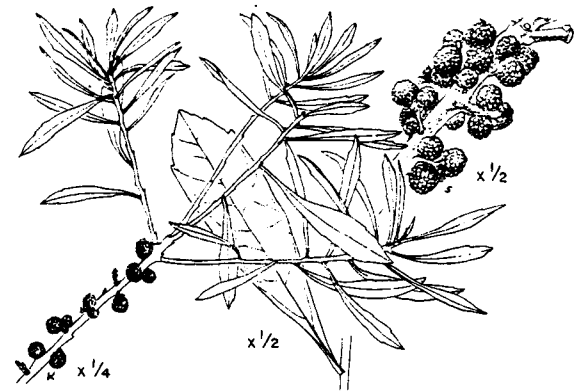
Poison Ivy - *Toxicodendron radicans*. The familiar 3-part leaf is one of the most common understory plants along the nature trail. Most people are familiar with it as a climbing vine, but be aware - along the trail it is even more common as a shrub standing almost a meter in height. It is common in many habitats of the coast including dunes, beaches, swamps and marshes. Caution: some people have a severe allergic reaction.



Magnolia virginiana

Sweet Bay - *Magnolia virginiana*. In the reserve this plant varies from shrub size to small tree. The leaves are semi-evergreen and distinctly whiter on the underside, easily noticed when the wind blows. It is common in swales between wooded dunes, near ponds and in live oak woods.

Wax Myrtle - *Myrica cerifera*. One of the most common plants of the reserve and nature trail - the small ones would be called shrubs but it may grow to small tree proportions, up to 10 m. It's an evergreen but may lose its leaves in a severe winter. The name comes from a waxy white coating of the fruits. This wax can be extracted with boiling water and was an important source of candle wax. It is frequently found in stable dune environments also.



Myrica cerifera

Yaupon - *Ilex vomitoria*. Another large shrub or small tree with evergreen leaves. It looks like a holly tree because it is a member of that family. The fruit are typically red, but may occasionally be yellow. Only female plants bear fruits, though both male and female flowers occur.

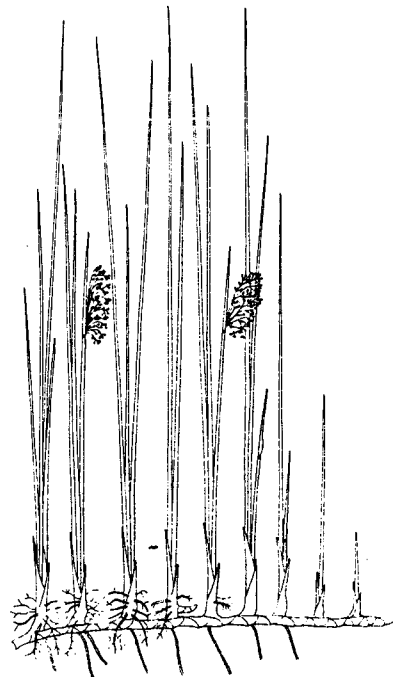


Ilex vomitoria



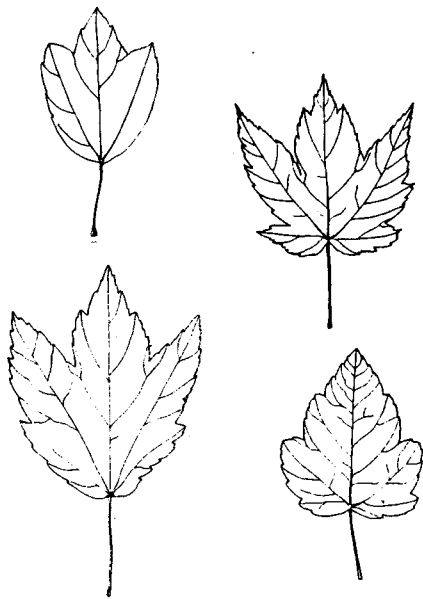
Toxicodendron radicans

Black Needle Rush - *Juncus roemerianus*. this rush is the dominant plant along the boardwalk at the edge of Weeks Bay. It's perhaps the most important producer of emergent salt marshes in the north-central Gulf of



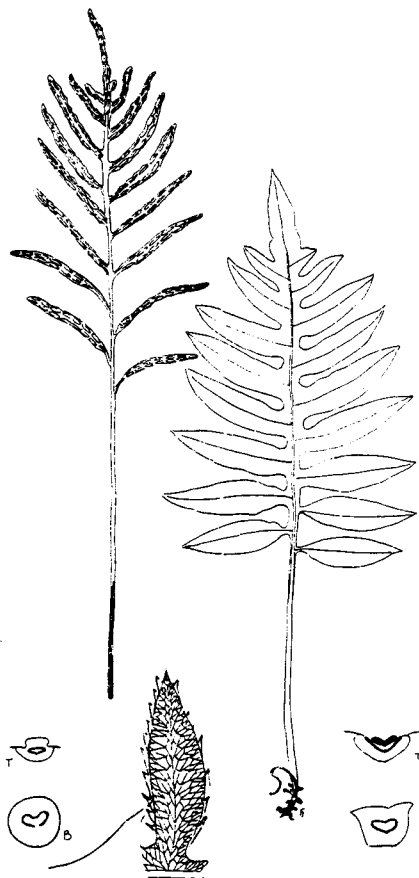
Juncus roemerianus

Plants of the Weeks Bay Estuarine Research Reserve Nature Trail Continued.



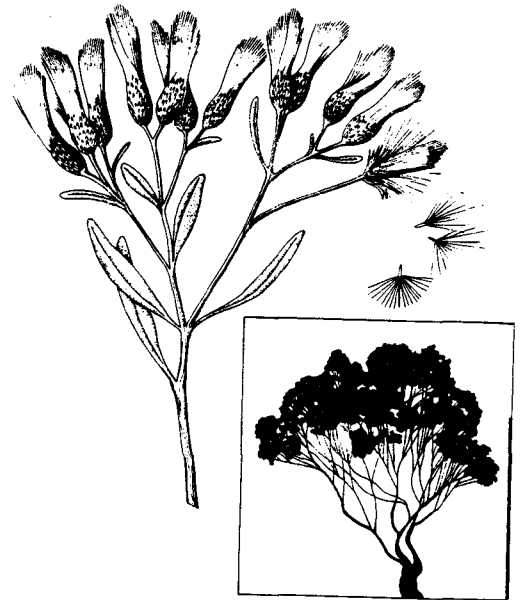
Acer rubrum

Red Maple - *Acer rubrum*. This is a medium to large tree with 3-5 lobed leaves. This is perhaps the most colorful of the southern trees with yellow and red leaves in the Fall and winged colorful fruit in the Spring.

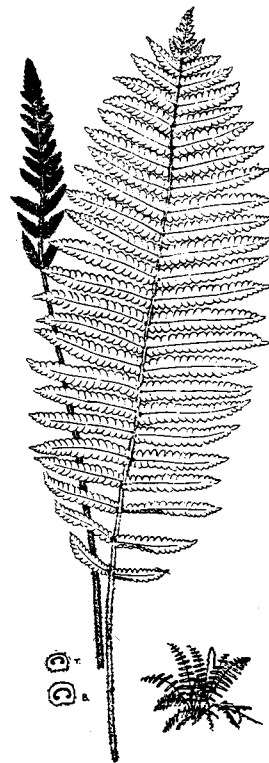


Woodwardia areolata

Sea Myrtle - *Baccharis halimifolia*. This is another plant typical of the scrub-shrub habitat. This is common to fresh and salt marsh areas also.



Baccharis halimifolia

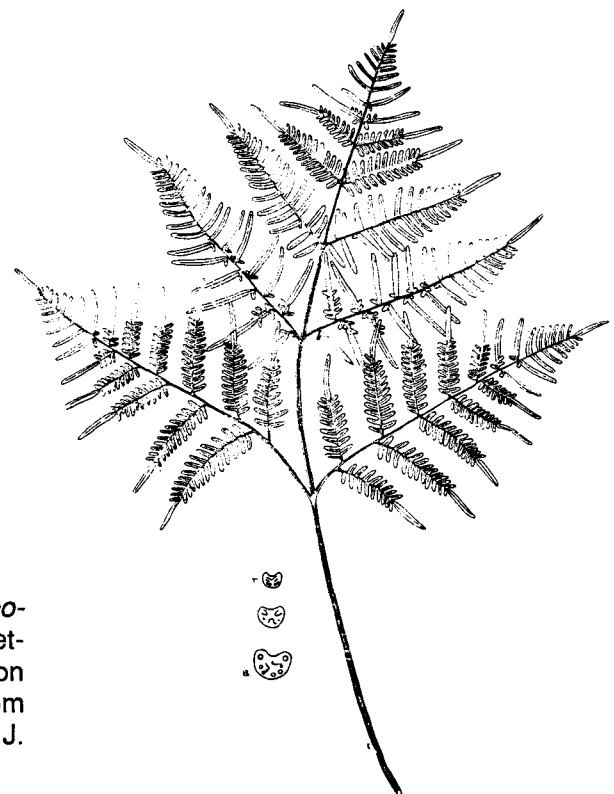


Osmunda cinnamomea

Cinnamon Fern - *Osmunda cinnamomea*. This fern gets its name from the cinnamon-colored sporangia on the fertile blades.

Netted Chain fern - *Woodwardia areolata*. The "leaves" have a visible network of veins giving the fern its common name. Its scientific name comes from and English botanist Thomas J. Woodward.

Bracken Fern - *Pteridium aquilinum*. This rapidly spreading fern is probably the most common woodland fern. It is distinctive in having the long terminal segment.



Pteridium aquilinum

Auburn Researchers Look at Weeks Bay Fish Population

The importance of estuaries in providing critical nursery habitat for many commercial and recreational fish species is well documented. However, estuarine fish communities are highly dynamic since they tend to be dominated by a variety of transient species that enter the estuary from open water for relatively short periods during early life. These fish respond differently to a variety of physical, chemical and biological habitat parameters, yet it is unclear which environmental factors, or combination of factors, influence the suitability of estuaries for fish production.

Researchers with the Alabama Cooperative Fish and Wildlife Research Unit located at Auburn University and the Auburn Marine Research and Extension Program are examining the relationship between fish community structure and estuarine habitat conditions in Weeks Bay based on data collected during the spring of 1988. The project was funded by the National Oceanic and Atmosphere Administration (NOAA) and funding for an expanded second year study has been awarded.

The objectives for the 1988 study were to 1, identify important physicochemical (eg. salinity, temperature, substrate, etc.,) and biological (eg. zooplankton, benthic fauna, etc.) parameters that influence fish density and species composition and 2, produce predictive models relating these parameters to the abundance or presence of fish. The completed data-set includes over 50 physical, chemical and biological variables for 73 habitat samples. Over 21,000 fish comprising 26 species were recorded during the 12 week field season. While no freshwater fish were captured, ten estuarine species were collected that had not been recorded in the final Environmental Impact Statement and Management Plan for the Weeks Bay National Estuarine Sanctuary.

A combination of two to four of the 50 variables usually could predict the presence or number of 11 common species (nine fish and two shrimp). Substrate type was the variable which most frequently contributed to the models followed by surface water salinity and surface water temperature. Other researchers have noted the important role that salinity and temperature play in affect-

ing the distribution of fishes in other estuaries of the United States. The role that substrate plays in the predictability of the models may be indirect. The remaining variables that were ultimately used in one or more of the models are: surface water velocity, water velocity direction, distance from shore, water depth, time of year, and water clarity.

Different species immigrate to, and emigrate from, estuaries at different times of the year producing what some investigators describe as "waves of recruits." Therefore, field sampling in 1989 will be conducted during the peak nursery periods of the year (eg. spring, summer and fall). The result of this work should help define those characteristics that promote a good nursery. This information might then be applied towards increasing fish productivity in other areas through ecologically managed habitat modifications.-Lance Robinson

WBERR Planning Visit to Florida

The Weeks Bay Estuarine Research Reserve Advisory Committee and other friends of Weeks Bay will be visiting the Apalachicola Estuarine Research Reserve May 15 and 16. Mr. Woodward Miley, manager of Apalachicola ERR, and Ms. Bonnie Hollub, educator coordinator, will host a tour of the reserve and facilities and discuss programs at Apalachicola. The trip will serve as a workshop for committee members to gain information on operations, management and education and research development from a well established reserve. The program at Weeks Bay is unique, but hopefully the experiences of the professionals will help anticipate problems and accelerate development of similar programs at WBERR. Dr. John Borom, committee chairman, has coordinated the trip and will provide transportation through Faulkner State Junior College.

Borom Leads Sanctuary Into A New Era

The Chairman of the Advisory Committee, Dr. John Borom, a native of Fairhope, Alabama, is married to Carolyn Stewart of Mobile. The Boroms' have three daughters, Jennifer, Julie, and Jane. After attending public schools in Fairhope, he received a B.S. degree (biology/chemistry) from William Carey College, and his M.S. (biology/science educational) degrees from the University of Southern Mississippi. His doctoral research focused on the communities of the disappearing estuarine grassbeds of the coast, ensuring his qualification to lead the committee.

Dr. Borom's teaching experience in the field of higher education includes one year in the junior college system in Florida, one year at Enterprise State Junior College, five years at Mobile College and 14 years at Faulkner State Junior College. He has been affiliated with the teaching program at the Marine Environmental Sciences Consortium at Dauphin Island Sea Lab, Alabama.

Dr. Borom is a member of the following professional organizations: Alabama Academy of Science, The National Audubon Society, The Cousteau Society, The Association of Southeastern Biologists, The Nature Conservancy, and the Alabama Junior College Association. He received the Citizenship Award at William Carey College and is listed as an Outstanding Educator in America. The Alabama Conservancy named him conservationist of the year in the State of Alabama in 1979 for his work leading to the establishment of the Bon Secour National Wildlife Refuge. Woodmen of the World named him Conservationist of the Year in 1988 for his work leading to the establishment of the Weeks Bay National Estuarine Research Reserve. John is currently the director of the Faulkner State College Fairhope Campus.



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FROM THE MANAGER Pamala James

It is an honor to serve as manager of Weeks Bay National Estuarine Research Reserve. I began work with the Marine Resources Division of the Alabama Department of Conservation and Natural Resources March 20, 1989, after having served as an instructor with Discovery Hall at the Dauphin Island Sea Lab. As a resident of Mobile County for over three years, and assistant on research projects conducted within the reserve, I have had previous knowledge of WBNERR.

Mr. Walter Tatum, the Marine Resources Division of ADCNR and the Weeks Bay Advisory Committee gave me a warm welcome. My first month was spent learning as much as possible about Weeks Bay and the National Reserve Research System, planning for the future of the reserve, and acting on many issues right away. Mr. Tatum, along with Walter Stevenson, Gil Gilder and Clyde Chatman of Alabama Department of Economic and Community Affairs, has

already acted on many items slated for our 3rd year management plan. The Weeks Bay Rustic Nature Trail has been established and will be the focal point of all immediate activities in the Reserve. Boundaries have been marked and signs erected marking the Reserve. An information center has gone up at the nature trail where brochures and information concerning Weeks Bay will be available. Other sites are being considered for nature trails, and a management plan is being developed for the Foley tract pitcher plant bog.

Public awareness is a high priority at this time. Mr. Tatum and Dr. John Borom have spoken to many clubs and civic organizations and conducted teacher workshops in association with the Reserve. I have spoken with the South Baldwin County Hospital Auxiliary and the Baldwin County League of Women Voters about future plans for Weeks Bay NERR.

Education programs are an excellent means of promoting concern and public awareness. Visits to environmentally oriented facilities (the Environmental Studies Center, Bon Secour Wildlife Refuge and Gulf State Park Nature Center)

helped me obtain ideas and information concerning education programs. Soon these ideas will be incorporated into activities designed for elementary school students. Foley instructors have already scheduled activities at Weeks Bay. Annette Salvatore, Gulf State Park Naturalist, is going to help provide nature oriented activities for several groups.

We are moving quickly towards establishing a citizen support group. This group will be open to anyone interested in Weeks Bay NERR. Functions of the organization may include addressing issues which involve the Reserve, suggesting and promoting activities in the Reserve, assisting in or conducting programs in the Reserve and fund raising. Further information on the citizen support group will be in future issues of the Pelican Post.

Providing a reasonably undisturbed and accessible site for research is a primary function of the Research System. It is a pleasure to report research projects concerned with and located in Weeks Bay NERR are steadily increasing. These projects are focused on issues relating specifically to Weeks Bay as well as ecological issues that may be applied on much broader scales.

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