

The Pelican Post

Weeks Bay Reserve Foundation
Newsletter
January 1997

Welcome to the official newsletter of the Weeks Bay Reserve Foundation. Articles of interest to bay watchers, wetland watchers, and others interested in the coast and in nature will be featured.

Thanks!

The Weeks Bay Reserve Foundation expresses its thanks to the Mobile law firm of **Cunningham, Bounds, & Byrd** for its very generous donation of \$3,500. With the support of this firm and other donors, we are able to continue the progress made on many fronts over the years.

The Foundation would also like to express its thanks to **Mike Morris** for organizing the 4th Annual Baldwin County Taekwondo Championship Tournament for the benefit of the Weeks Bay Estuary. The tournament was November 16 on the Faulkner State Fairhope Campus. A \$250 donation was presented to the Foundation.

Research Continues At Weeks Bay

Dr. James H. Cowan and **Dr. Jonathan R. Pennock** of Dauphin Island Sea Lab received a two-year grant from the Mississippi-Alabama Sea Grant to examine how nutrients from agricultural runoff, sewage treatment, septic systems and other sources are affecting plants, and therefore, the entire food web in the estuary.

Since May of this year, the two researchers and their graduate students **Todd Brackin**, **Jessica Hill** and **Kelly Shotts** have been collecting samples from eight stations every other week along the Fish River. Their water samples are enabling them to examine such parameters as salinity, temperature, nutrients, algal concentration and density, and plankton density. By using a modified push trawl and a standard otter trawl, they are also carefully looking at important fin and shell fish, such as shrimp, blue crab, anchovies, menhaden, spot and croaker.

Are nutrient levels being affected by man-made sources along the River? Are those levels affecting fish growth? Are these nutrients harmful or beneficial? By using Weeks Bay as a model, we can try to understand how the effects of nutrients act on this and other estuaries. We hope that by using the data gained in this research project, we can knowledgeably provide direction effective for management of resources here and in other estuarine environments.

Site Improvements At Interpretive Center

Recent visitors at the Interpretive Center are aware of two new improvements in public access and enhancement of Reserve property. This summer, two goals for site-improvements were made including the pavilion for the observation deck on Weeks Bay and a storage facility at the Interpretive Center. Funding was provided by the National Oceanic & Atmospheric Administration, Office of Coastal Resources Management, Sanctuaries and Reserves Division, and the Alabama Department of Economic and Community Affairs.

Mark Cooper designed the facility and erected it with the help of staff and volunteers. **Will Brabston**, along with his Fairhope Boy Scout Troop #47, made benches for the pavilion and constructed an outdoor classroom.

Visitors are encouraged to enjoy exhibits at the Interpretive Center and stroll along one of two scenic nature trails.



Visit the Weeks Bay Reserve Interpretive Center and Nature Trails

Office hours are: Monday through Saturday 8:00 A.M. to 5:00 P.M.
Sunday 1:00 P.M. to 5:00 P.M.

If you are interested in scheduling a special group activity, call 928-9792.

1996 NERRS CONFERENCE

Weeks Bay staff recently attended the annual system workshop in St. Simons, Georgia hosted by the Sapelo National Estuarine Research Reserve(NERR). It was a very productive time as staff from all over the country came together to share their expertise in promoting informed management of the Nation's estuarine and coastal habitats. The general topic for the week was to work on an action plan for the next 1-3 years. This would implement the National Estuarine Research Reserve System(NERRS) Strategic Plan which was completed in January, 1995.

The week long workshop covered many topics of concern to managers, researchers, and educators. These three areas were covered during concurrent sessions. Each group would then report to all groups combined in a joint session.

Calendar

January

- 24 Alabama Water Watch Recertification for Monitors, Weeks Bay NERR, 3-6 pm
- 25 Alabama Water Watch Recertification for Monitors, Weeks Bay NERR, 9-noon OR
- 25 Alabama Water Watch Monitor Certification, Weeks Bay NERR, 9 am-3 pm, for individuals interested in becoming new AWW monitors

White Pelicans are in the area and make beautiful viewing when located.

Witch-Hazel shrub showing inconspicuous yellow flowers along boardwalk.

February

- 1 Guest Lecture Series, Centennial Hall, Faulkner State CC - Fairhope, 9:30 - 11:30 am. Program Title "Manatees and Magnolias"
- 27 Weeks Bay Advisory Committee meeting, Weeks Bay NERR, 2 pm

Red Maple trees coming into flower; Yellow Jasmine vines coming into flower.

Waterfowl moving through Weeks Bay, typically scaup, merganser, and teal.

New Exhibit

A new exhibit featuring American Indian fishing methods now graces a wall at the Interpretive Center. The artifacts and original artwork were provided by **Bobby Johns** and **Dave Edwards** of Pensacola, Florida. The display was funded by the Weeks Bay Reserve Foundation.

Concerned About Water Quality ...Become a Citizen Monitor

Become part of the dedicated team of Weeks Bay Water Watch monitors, volunteers trained to conduct water quality tests on streams and rivers in the Weeks Bay Watershed. Contact **Tina Lynn** at the Reserve.

Important Meeting of Weeks Bay Volunteers

The Weeks Bay volunteers met at the Reserve on Friday, December 6th at 10:00 am. This meeting was scheduled to receive input from our volunteers concerning some very important issues. Decisions were made concerning our volunteer projects for 1997. We also received feedback from our volunteers concerning the types of seminars, workshops and training they would like to receive.

If you would like to join our interesting and worthwhile volunteer program please call **Maureen Nation** at the Reserve.

Reserve Education

September at the Reserve marked the completion of the K-12 curriculum guide and education volunteer training. The new curriculum guides are used in training the education volunteers to conduct estuarine activities that are specific to each grade level. Baldwin County Public Schools started the school year two weeks earlier than last year, so September, October and November have been extremely busy with school groups visiting the Interpretive Center.

Wayne Folks, the Estuary Net coordinator, has been conducting field labs for the students involved with the Estuary Net program. Students conduct a macroinvertebrate survey and a stream flow assessment to determine the water quality of a creek. They also go on the *Estuarine Queen* to conduct water quality tests and to get a look at estuarine habitats up close.

"We seem to believe we can get everything we need from the supermarket and corner drugstore. We don't understand that everything has a source in the land or sea, and that we must respect these sources."

Thor Heyerdahl

Nitrogen And Phosphorus

Although nutrients such as nitrogen and phosphorus are essential for aquatic plant growth, they cause problems when overly abundant in lakes, streams, and estuaries. Human activities often increase the amount of nutrients reaching bodies of water, resulting in rapid aquatic plant growth and noxious algal blooms.

Water clogged with weeds is undesirable for most recreational uses, such as swimming and boating. In addition when these weeds die and decompose, they consume oxygen in the water. Severe oxygen shortages may result in fish kills. Decaying algae can also cause taste and odor problems.

Phosphorus is the plant nutrient which is usually least abundant naturally in fresh waters and often is the most significant factor limiting plant growth. When excessive phosphorus enters water, it can trigger the rapid growth of algae and aquatic weeds.

The Environmental Protection Agency (EPA) water quality criteria state that phosphates should not exceed 0.05 mg/l if streams discharge into lakes or reservoirs, 0.025 mg/l within a lake or reservoir, and 0.1 mg/l in streams or flowing waters not discharging into lakes or reservoirs to control algal growth. Surface waters that are maintained at 0.01 to 0.03 mg/l of total phosphorus tend to remain uncontaminated by algal blooms.

In contrast to fresh water, nitrogen is generally the primary limiting nutrient in the seaward portions of estuarine systems. Here nitrogen levels control the rate of primary production. If the system is supplied with high levels of nitrogen, algal blooms will occur. Nitrogen, occurring as nitrate, is a public health concern in ground water supplies used for drinking. Nitrate may come from non point sources such as nitrogen-containing fertilizers used in rural and urban settings, decomposing plant and animal wastes, and leaching of human waste products from failing or overloaded septic systems.

Salinity

Salinity is the concentration of dissolved salts in water. In the open ocean salinity reaches 35 parts per thousand (ppt). Salinity in an estuary will vary according to tides, depth, and fresh water input. In an estuary, salinity gradually increases longitudinally as freshwater flows seaward. This salinity distribution results from the density difference between salt and fresh water. Fresh water from the rivers tends to flow above the salt water because it is less dense. As the fresh water flows to the sea, deeper salt water mixes with it and causes the fresh water to become saltier. This causes more salt water to move in on the bottom. Such interaction results in a net outflow to the sea at the surface and a net inflow of salt water on the bottom.

Sharks were once thought to be instinctive killing machines, but it is now believed that they learn to hunt by experience. The sense of smell is so important to a shark that nearly two-thirds of its brain is devoted to processing scent information..

AmeriCorps

For five weeks in January and February the AmeriCorps Program volunteers will once again give their time, energy and muscle to the Reserve. As you may remember, the AmeriCorps service program is part of the National Civilian Community Corps that provides volunteers to complete needed projects for environmental, educational, or safety enhancement. Last May the AmeriCorps members constructed over 2 miles of cleared trails and expanded the bog area. This year they will complete another trail and clear an area for a future forestry arboretum. The Reserve is looking forward to the return of these fine young men and women who help to enrich the visitors' Weeks Bay experience.

Elderhostel

University of South Alabama hosted an Elderhostel International program that once again came to the Weeks Bay Reserve in November. Their introduction to estuarine and coastal environments was a great success as proved by their interest, enthusiasm and favorable comments. The threatening weather cleared on the last day enough to provide a worthwhile boat trip on the Magnolia River where migratory birds, and other wildlife activity was seen.

In early December, another Elderhostel group came to the Reserve for a one-day program hosted by Faulkner State Community College. They were treated to a tour of the Interpretive Center and boardwalk trail.

Water Quality Program

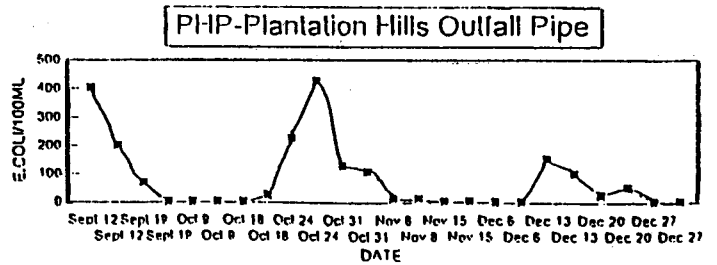
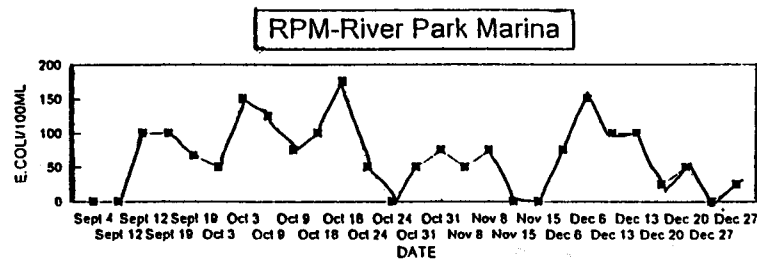
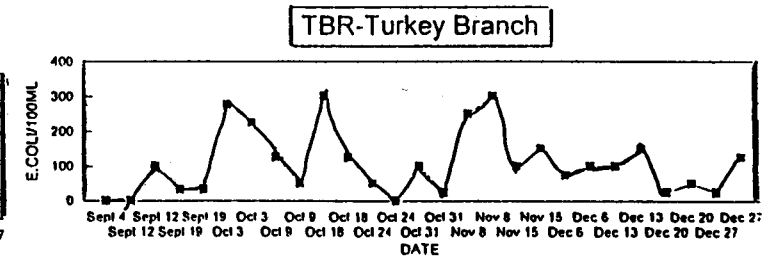
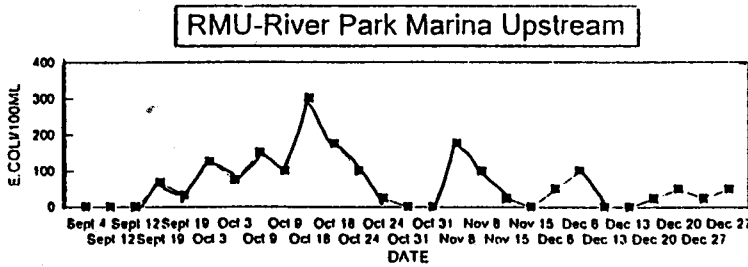
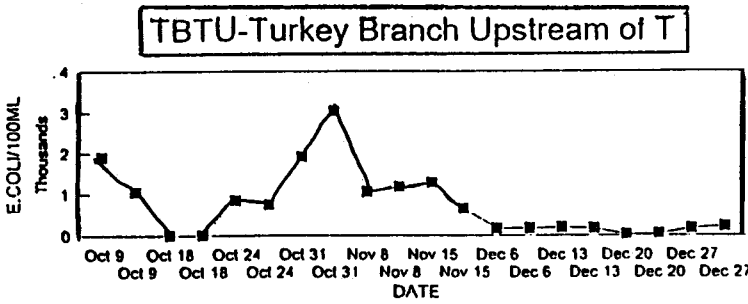
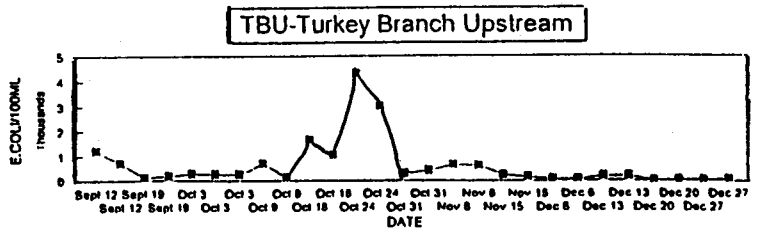
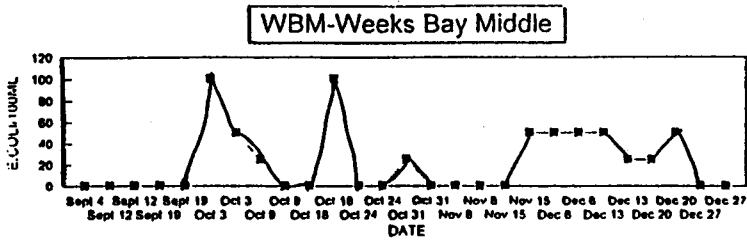
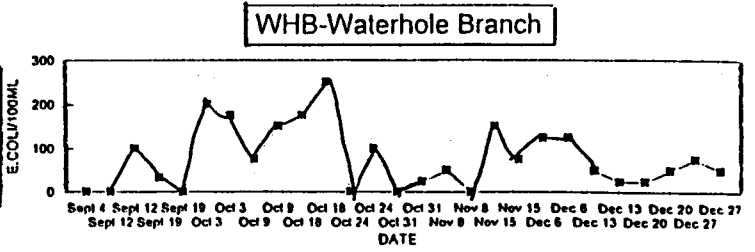
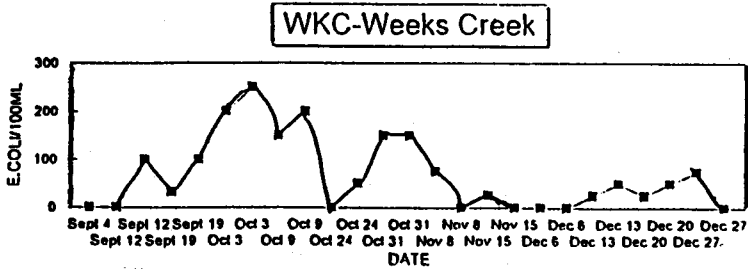
Your Weeks Bay Foundation continues its water quality monitoring program, with weekly testing for *E Coli*, the results of which are shown in the following graphs. The EPA limit for average swimming water is 295 colonies per ml. As can be seen, there are several sites with violations.

The most serious violation occurred in Turkey Branch, just east of Highway 27 and from the effluent from the Plantation Hills treatment plant. These and other violations are reported to ADEM and the Health Department and we continue to perform additional tests in areas of concern.

We are testing 16 different sites on the Fish and Magnolia Rivers, as well as both treatment plants (Loxley and Plantation Hills) that discharge into Fish River or its tributaries on a weekly basis.

We are deeply grateful to **Dr. Paul Hansche** of Magnolia Springs and **Ed Parker** of Waterhole Branch for their diligent and effective efforts in the water quality monitoring program.

Also, we would like to thank other participants in this program including **Brooke Kelly**, Turkey Branch; **Bridget Stringfellow**, Magnolia River and **Rex Leatherbury**, Pole Cat Creek.



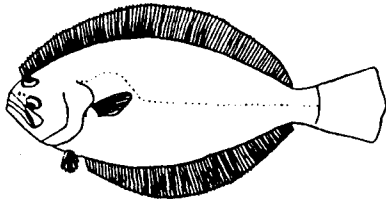
****EPA LIMIT 295**

Nature's Calendar

The Southern flounder (*Paralichthys lethostigma*) inhabits coastal waters of the Gulf including estuaries and rivers. Large numbers can also occasionally be found in fresh water. It is usually associated with muddy and sandy bottoms, pilings and rock piles.

The larger fish leave the bays for the open Gulf during the fall in order to spawn. A severe cold front will cause a mass migration, while a moderate or warm winter will cause the larger flounders to leave dispersed over a greater period of time. Spawning grounds are located offshore at depths between 90 feet and 180 feet. Spawning occurs from fall to spring, primarily from November to January. The eggs are pelagic (open sea) and hatch in a very few days. The newly hatched larvae are symmetrical, with an eye on each side of the head as in any other fish, and they swim at or near the surface. After a time, when the larvae have grown to half an inch in length, the right eye moves around to the upper edge of the head and finally around to the left side, where it comes to lie close to the other eye. Associated with the migration of the eye is one involving the nostril of the same side, a twisting of the mouth and an elongation of the dorsal fin. It is probable that metamorphosis takes place rather rapidly. While these changes are taking place the little fish sinks to the bottom of the Gulf, and thereafter lies or swims at or near the bottom with the eyed side uppermost. Larvae move into estuaries that serve as nursery areas. Juveniles inhabit estuarine waters until maturity when they gradually shift to coastal areas of the Gulf.

This is the largest Gulf flatfish, reaching three feet and over 10 pounds.



SOUTHERN FLOUNDER
Paralichthys lethostigma

Fund Raising Begins

An immediate opportunity is available through a grant request for 306A funds from the Coastal Programs Office established by the Coastal Zone Management Act (CZMA). Weeks Bay Reserve has requested assistance to build an **elevated boardwalk** (handicapped accessible) in the **carnivorous pitcher plant bog** located on the west side of County Road 17, just north of US Highway 98. The grant will provide federal funding for the \$50,000 project but it requires a 50/50 match from a local source. **A tremendous effort is required at this time to raise \$25,000 to match the federal grant.** This would be a tax deductible donation and materials (lumber and hardware) would be acceptable as well as a cash donation. Please consider your tax deductible contribution today. **Make checks payable to the Weeks Bay Reserve Foundation and mark it for the Bog Boardwalk.** If you would like more information, call the Reserve at 928-9792.

Weeks Bay included as part of Alabama Tourism

In October, the Weeks Bay Reserve hosted a tour for managers of the Alabama Tourism Board. The Reserve is now an "official" state tourist site, and will be in brochures and tourism literature. We are proud and encouraged that our Reserve is now getting state and national attention as an attraction for visiting tourists in the field of environmental education and research. Our quality museum exhibits and nature trails offer the visitor a wonderful and unique experience into our coastal world.

Red-Breasted Merganser

The Red-Breasted Merganser (*Mergus serrator*) is mainly a bird of the coastal waterways. They are fish-eaters that dive and chase their prey under water. Their bills are long, narrow and provided with toothlike serrations to aid in holding slippery fish.

They breed from the Arctic Coast of Alaska south to Minnesota and Newfoundland. In early October, they migrate from the north, all in dull winter plumage. Long lines of gray, brown-headed birds move over the waves. Their flight, strong and direct, is usually low over the water. Their winter quarters are as far south as Florida and California, chiefly on saltwater. They are moderately common at Weeks Bay from the middle of October until the middle of May. Although unmistakably large ducks, the small heads, thin bill, long neck and body held perfectly straight and rapid wing beat are characteristics that make mergansers easy to distinguish from other ducks.

These are diving ducks, and before taking flight they patter across the water. When a flock alights and begins feeding, the birds often dive in a forward leap that carries them clear of the surface. Later in winter, drakes in full plumage appear. The drake has a conspicuously crested, green-glossed blackish head that is separated from the dull reddish breast by a white collar. The eyes and bill are bright red. The female has a rufous-red head that shades gradually into the white of the breast.

Look for them from the observation deck on the boardwalk nature trail and around View Point Park.

Typical Flock Pattern



RED-BREASTED MERGANSER

Extinction

The Carolina Parakeet (*Conuropsis carolinensis*) was a relatively small parrot--about 12 inches long and 10 ounces in weight. Its body was green and yellow, its tail long and pointed, and it had a yellow head, which deepened to orange at the base of the bill. It was the only parrot native to the United States, but until the later part of the nineteenth century was extremely common in the eastern deciduous forest, especially in densely wooded river bottoms. At one time this species was a permanent resident of the Coastal Plain in Alabama and undoubtedly bred in the state. It disappeared from Alabama prior to 1880.

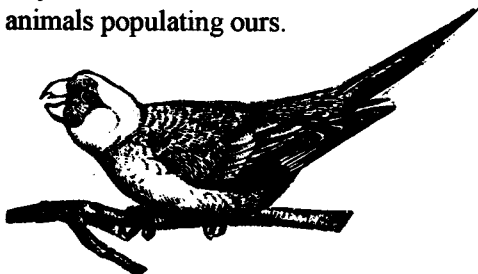
The cause of their extirpation was almost exclusively over hunting by men who slaughtered them for sport, food or feathers. During the nineteenth century they were commonly kept as cage birds, and so trappers took many thousands to sell as pets, even though they hardly ever bred in captivity. Farmers, as well, killed large numbers. The birds were by nature seed-eaters and when the forests were cut to make way for orchards and grainfields, they fed upon these crops as well. Parakeets sometimes ate fruit before it was ripe or tore fruit apart to get at the seeds. The farmers reaction was predictable.

The parakeets lived primarily in mature forest areas and formed rookeries within hollow trees. Obviously forest clearance had its effect, but their decline was far more rapid than habitat destruction alone could account for.

The species had an instinctive defensive pattern not uncommon in parrots. When one bird had been wounded or killed, the rest of the flock would noisily swoop or hover over the fallen in concern or anger. With certain natural enemies this tactic might distract or drive the predator away from the victim. It was however, a disastrous practice when confronting a man with a gun, and hunters frequently would destroy entire flocks after bringing down a single bird.

By the 1880's it became obvious that the birds were extremely rare, but little was done to preserve them until it was far too late. In the East the last wild specimen was collected in 1901, and the last sighting was 1904; although reports of Carolina Parakeets being seen in Louisiana were recorded as late as 1910. Others remained alive in captivity until the last one fell from its perch and died in its cage in the Cincinnati Zoological Gardens in September 1914.

During the past 600 million years, the natural rate of extinction has been about one species per year. Around the world now, the rate is estimated to be one to three species lost everyday--perhaps as high as one species every hour, and the rate is accelerating. Scientists predict that by the early twenty-first century, we will witness several hundreds extinctions per day. Our grandchildren may live in a world with fewer than half the species of plants and animals populating ours.



The Carolina Parakeet (*Conuropsis carolinensis*)

Did You Know?

Animals are important parts of a bottomland hardwood swamp. A good example is the case of the cypress tree. Today, cypress seeds are spread only by moving water; if the flow of water through the cypress forest is stopped, the seeds cannot disperse. At one time, though, the brightly colored Carolina Parakeet ate the seeds and spread them in its droppings. Today, the parakeet is extinct, and the balance of the bottom land hardwood swamp has been altered. It is often difficult to predict the results when part of an ecosystem is disrupted, for each part, no matter how insignificant it may seem, is an important part of a larger system.

Spot

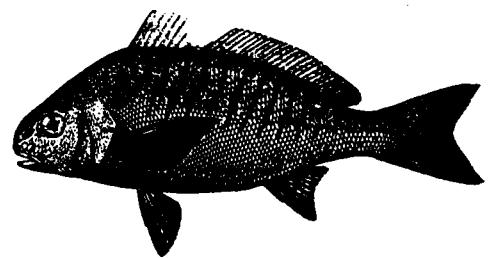
The spot (*Leiostomus xanthurus*) is found along the western Atlantic coast from Massachusetts, throughout coastal shelf areas of the Gulf, to the Yucatan Peninsula. The name comes from a distinctive trait, a dark rounded, eye-sized spot just behind the upper edge of the gill cover. The maximum size is about one foot in length.

It is a dominant bottom fish in the nearshore and inshore areas of the northern Gulf. It travels in huge, slow-moving schools over sand-mud bottoms, feeding on bottom dwelling, soft bodied invertebrates and smaller, easily crushed crustaceans. Adult spot dig into the bottom as they feed. Juvenile spot form large schools, and adults also aggregate during spawning. Male spot are capable of producing a "drumming" sound, but it is not a loud one, probably because of the thinness of the walls of the air bladder and the feeble development of the drumming muscles.

Spawning takes place offshore from October to February, peaking from December to February. Nursery areas are located along the coast in estuaries and rivers. Juveniles prefer shallow waters near runoff areas, marshes, and tidal flats where the bottom is muddy and contains detritus. Juveniles remain in estuaries for eight to nine months thriving on the rich food source. Juveniles move offshore after one year's growth in estuaries.

Spot are harvested commercially in the United States and in Mexico. Because of their rather picky dietary preferences, they are less likely to be taken on hook and line than other members of the drum family. They are often taken in shrimp trawls and other nets in lower bay and nearshore areas.

Large specimens are fine eating and it is important food fish on the Atlantic coast. However, their smaller size and great abundance make them far more attractive to pet food processors. About 4,000 tons are harvested annually, principally for this purpose.



Spot

(*Leiostomus xanthurus*)

Funds for publication of this newsletter are provided by members of the Weeks Bay Reserve Foundation.

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Suggestions and comments from readers on future topics of interest are welcomed by the editors. If you know of others who would be interested in receiving this newsletter, please have them send requests to be included on the mailing list to the return address shown on the panel below

WEEKS BAY RESERVE FOUNDATION

11300 U. S. Highway 98
Fairhope, AL 36532
334-928-9792

JOIN US !!!

Weeks Bay Reserve Foundation

Weeks Bay Reserve Foundation is a non-profit organization whose members provide assistance and support to the Weeks Bay National Estuarine Research Reserve's goals and programs.

As a member, you will be joining a group of people with similar interests and concerns for natural resources. You can become directly involved with the Reserve's research and educational programs by volunteering to help with field trips, seminars, cultural events, newsletters and special projects.

You will be regularly informed of Reserve activities through newsletters, special mailings and meetings. The opportunities for involvement are unlimited. Whatever your talents or interests, the Reserve can use your support. You, the environment, and your community will benefit as a result of your membership. If you are not a member and would like to join, please mail this form, along with your tax-deductible donation to:

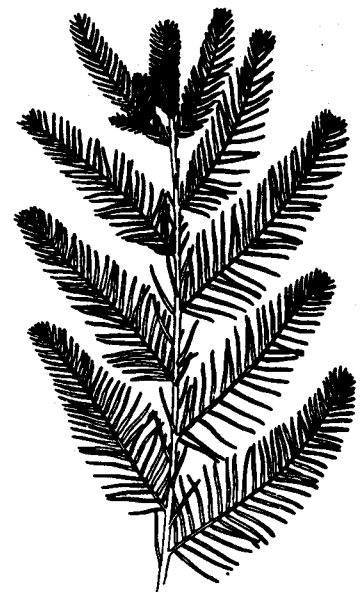
Weeks Bay Reserve Foundation
11300 U. S. Highway 98
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NAME _____	STUDENT \$5/YR
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Bulk Rate
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Things You Can Do To Protect Marine Animals

1. Do not discard fishing line, nets, plastic bags, six-pack rings, or any kind of trash into the water.
2. Discourage helium balloon releases at special events.
3. Pick up what you find floating, and dispose of it properly.
4. Participate in beach clean-up days.
5. Support environmental education.



Bald Cypress
Taxodium distichum