

# The Pelican Post

Weeks Bay Reserve Foundation  
 Newsletter  
 August 1996

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.

## WEEKS BAY NATIONAL ESTUARINE RESEARCH RESERVE TENTH ANNIVERSARY CELEBRATION

If you follow developments in preservation of our natural resources, you will be proud of the progress made at Weeks Bay Reserve during the past ten years. On April 20th, the efforts of many individuals, groups and agencies involved were acknowledged. Some of the accomplishments over the past ten years are:

### Facilities and Public Access

- completed construction on 4,000 sq. ft. Interpretive Center
- secured funding to construct a new research/education building
- completed 2,000 foot-long elevated boardwalk/observation deck overlooking bay
- secured funding and completed construction of elevated boardwalk on another 1,200 ft.
- secured funding to construct a utility storage shed
- secured funding to develop interpretive signage on boardwalk
- completed development of two-mile hiking trail
- constructed fishing pier and picnic area at Manatee Park on Fish River
- reclaimed a decades-old pitcher plant bog and installed temporary boardwalk
- purchased 32 ft. pontoon boat for research and educational programs
- purchased 18 ft. skiff for research/monitoring activities

### Special Recognition

- received EPA's designation as Outstanding National Resource Water
- developed volunteer program of over 70 participants
- hosted television program for children
- pilot site for "Estuary Net Curriculum"

### Visitation, Programing and Public Outreach

- visitors from 50 states and 6 foreign countries
- developed educational/outreach programs and guided nature tours
- host annual native plant sale

### Research, Monitoring, and Information Transfer

- acquired 1,400 acres of land around Weeks Bay for resource protection
- developed watershed stewardship program
- produced variety of brochures on local plants and animals
- completed live animal exhibit room
- developed library for general public/researchers
- more than 30 scientific papers published on research conducted at Weeks Bay National Estuarine Research Reserve
- involved in Alabama Water Watch Monitoring Program
- developed an interpretive specimen collection of plants and animals.

During the program, **Exxon U.S.A., Mobile Bay Operations**, made a special presentation of \$65,000 to complete the 1,200 foot-long extension for the boardwalk nature trail. In recent years, Exxon has also supported the Reserve through donations for displays that explain ecological principles and the value of estuaries. The Reserve has also benefited from Exxon's support of summer interns who are majoring in an environmental discipline.

For the many dedicated people who have helped us grow, we say, "thanks"!



Exxon Official, Roger Koerner (left) presents a check for \$65,000 to Weeks Bay Reserve Foundation Chairman, Jack Edwards, as US Congressman Sonny Callahan (right) looks on.

## Americorps' Efforts Enhance Weeks Bay Reserve

AmeriCorps, a national community service program initiated by President Clinton two years ago to address our nation's environment, education, human and public safety needs at the community level, came to our Gulf Coast during April and May. Various community service projects were completed, with *no cost* to the recipients, in the counties of Baldwin, Mobile, and Escambia. Sites included the University of Mobile, the City of Citronelle, and the Weeks Bay National Estuarine Research Reserve.

The AmeriCorp members cleared and built over 2 miles of trails and made many other improvements to the Reserve.

## Volunteer News

The Weeks Bay volunteers have recently completed a major project at the reserve. Volunteers furnished the massive labor and from the funds of the plant sale, they completely installed an irrigation system for the beds in front of the Interpretive Center. This new system is fully programmable and should keep our butterfly gardens in good shape through the long hot summer.

It is not too early to begin thinking about our third annual plant sale which will be held the last weekend in September. We will sell mostly native plants to raise funds for future volunteer projects at the Reserve.

Weeks Bay Reserve is a fascinating place to visit and to work. Anyone interested in joining our group of hardworking, interesting volunteers should contact Maureen Nation at the Reserve or by phoning at 928-9792.

## Southern Swamp Lily

Look for the beautiful southern swamp lily (*Crinum americanum*) in the bottom land hardwood swamps and brackish marshes within the Reserve. It is an herb with green leathery, linear leaves arising from a subterranean bulb. The strap-shaped leaves are three to four feet long and two to three inches wide. The flower stalk is about one inch in diameter by three feet tall, with usually four fragrant, stringy, white flowers grouped at the apex. Each flower is about four inches wide with six narrow petal-like lobes attached to a long green floral tube. Blooms can be seen from May into November. The fruit is a fleshy capsule with three parts and many seeds. The fleshy bulbs are toxic and if eaten cause vomiting, shivering, diarrhea and sometimes death. This plant will thrive in cultivation.



Southern Swamp Lily

## Educators Workshop on Nonpoint Source Pollution In Watersheds

June 25th through June 28th marked the third annual workshop for educators on nonpoint source pollution at Weeks Bay Reserve. Participants from previous workshops have been primarily teachers from Mobile and Baldwin Counties. This year, the workshop invited participants from across Alabama to learn about the impacts of nonpoint source pollution in watersheds.

This workshop was a pilot for statewide participation. It was the first of what will become a permanent statewide workshop on nonpoint source pollution at Weeks Bay Reserve. The goals of the workshop are to provide the knowledge and resources for educators to initiate efforts towards watershed protection in their own local watersheds, and to demonstrate the consequences that upstream activities can have on coastal resources.

Thirty-four participants, including school teachers, boy and girl scout leaders, environmental educators, and municipal stormwater officials attended the 4-day workshop at Weeks Bay Reserve. Workshop participants were housed at Camp Beckwith. The program included an introduction to nonpoint source pollution and watershed management concepts. These included: presentations by agency officials who can provide assistance to teachers and educators, certification by Alabama Water Watch for volunteer water quality monitoring, and participation in classroom and stream site activities that can be used with students and public groups.

The workshop was planned by the Weeks Bay Watershed Project Educational Subcommittee. The cooperation and participation by the members of this committee lended much to the success of the workshop. Cooperators included Alabama Cooperative Extension System, Alabama Forestry Commission, Dauphin Island Sea Lab, University of South Alabama, Faulkner State Community College, and Alabama Department of Environmental Management. The workshop was funded by a grant from Environmental Protection Agency, Region IV, Section 319(h) program.

## New Indian Artifacts on Loan

Point Clear resident, **Dr. Ernie Curtis**, a volunteer at Weeks Bay Reserve, is loaning a portion of his collection of Indian artifacts of the southeastern United States to the Reserve. The new display is located in the glass cabinet in the main hallway. Dr. Curtis has collected the artifacts over many years. The collection includes such one-of-a-kind items as smoking pipes, projectile points, ceremonial pieces, a vertebra pierced by an arrowhead, pottery shards, and unusual storage gourds, to name just a few of the artifacts. Many of the items are several hundred to thousands of years old.

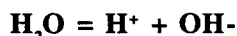
Come and visit the Interpretive Center and enjoy the collection thanks to Dr. Curtis' generosity.

## Focus on Water Quality Monitoring

In the last issue of *The Pelican Post*, fecal coliform and dissolved oxygen parameters were discussed. This issue will describe pH, alkalinity, and hardness and their relationship to water quality.

### pH

Water is an effective ionizing solvent. Water ionizes into hydrogen (H<sup>+</sup>) and hydroxyl (OH<sup>-</sup>) ions as demonstrated by the equation below:



Even perfectly pure water contains some hydrogen and hydroxyl ions. The equilibrium condition for the two ions depends upon temperature.

The *pH*, a term coined in 1909 meaning the power of hydrogen, is a quantitative indicator of the hydrogen ions. The pH is defined as the negative logarithm of the hydrogen ion activity [**pH = -log(H<sup>+</sup>)**].

If the hydrogen ion concentration is greater than that for the hydroxyl ions, the solution is said to be **acidic**. When the reverse situation exists and there are more hydroxyl ions, the solution is said to be **basic**. When the concentrations of the two ions are equal, the solution is **neutral**.

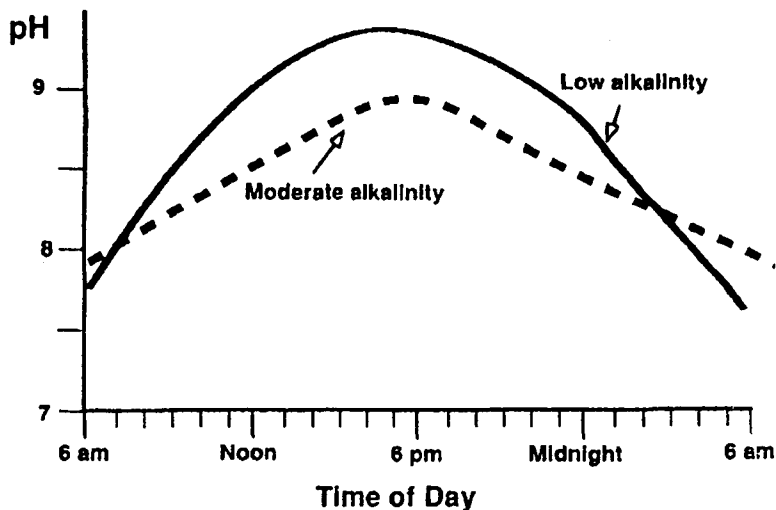
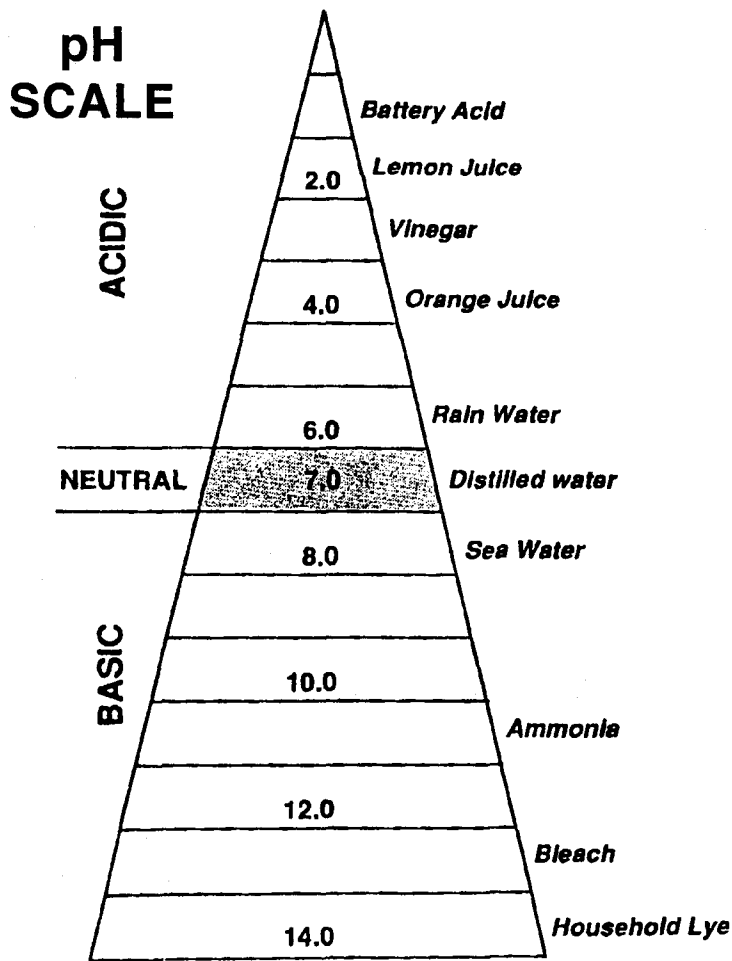
Values for pH are usually between 0 and 14.0 with the neutral point at (25° C) at 7.0. Solutions with pH values less than 7.0 are considered acidic, those between 7.0 and 14.0 are designated as basic. Most natural waters have pH values between 5.0 and 10.0, with the greatest frequency of values found between 6.5 and 9.0. Since the pH scale is logarithmic, every one-unit change represents a ten fold change in acidity (e.g., a pH value of 6.0 indicates 10 times more acidity than a value of 7.0, a value of 5.0 represents 100 times more than the neutral condition). pH is affected by carbon dioxide concentrations (CO<sub>2</sub>) because CO<sub>2</sub> in water forms a weak organic acid (carbonic acid). Both plants and animals continuously release carbon dioxide through the *process of respiration*. During daylight, aquatic plants use carbon dioxide during photosynthesis. Since CO<sub>2</sub> is an acid, if plants remove more than is being produced through respiration, the pH will increase during periods of high photosynthetic activity, decreasing at night when photosynthesis stops. Daily fluctuations in pH are less when waters are *buffered* (i.e., any substance in a fluid which tends to lessen the change in hydrogen ion concentration, which otherwise would be produced by adding acids or alkalis).

### Measuring pH

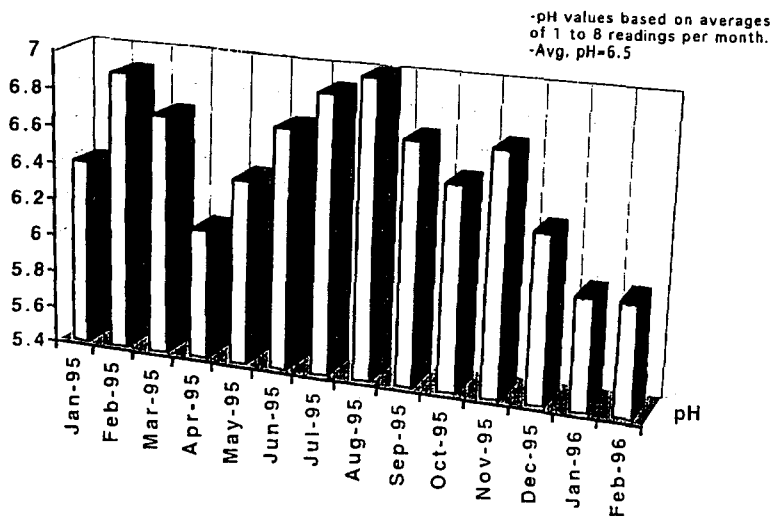
The pH is measured using liquid indicator kits or electronic pH meters.

## What Measured Levels May Indicate

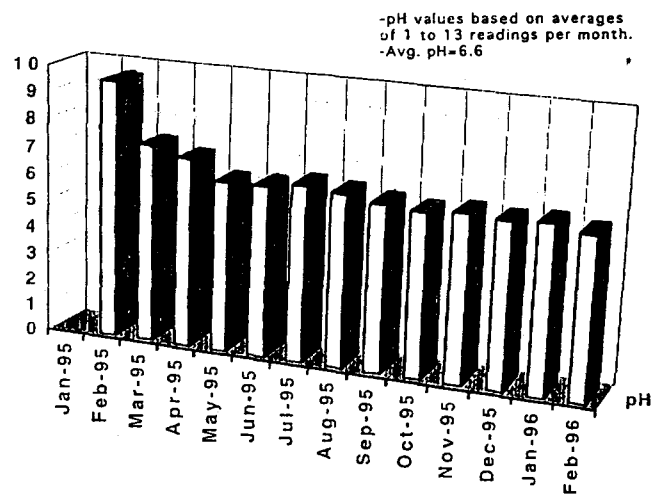
Routine monitoring of a water body should provide baseline information about normal pH values. Unanticipated decreases in pH could be indications of acid rain, runoff from acidic soils, or contamination by agricultural or live stock chemicals or by-products. pH values outside the expected range of 5.0 to 10.0 should be considered as indications of industrial pollution or some cataclysmic event.



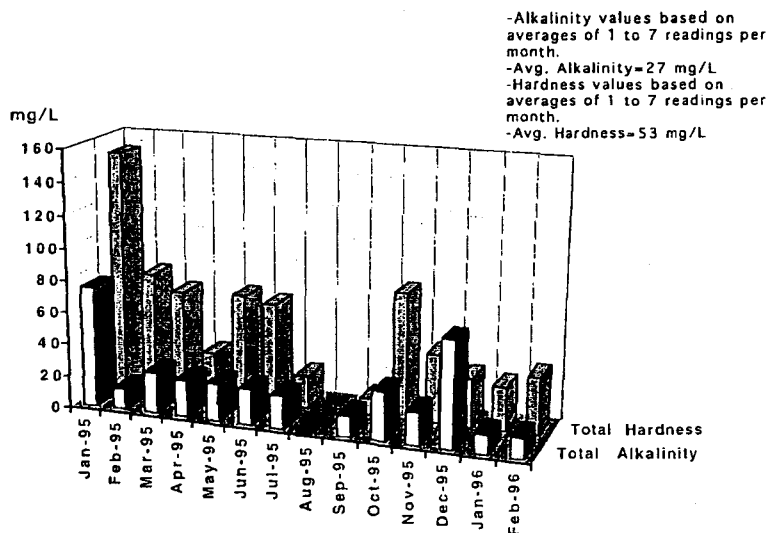
**pH for Fish River in Weeks Bay Watershed from January 1995 to February 1996**



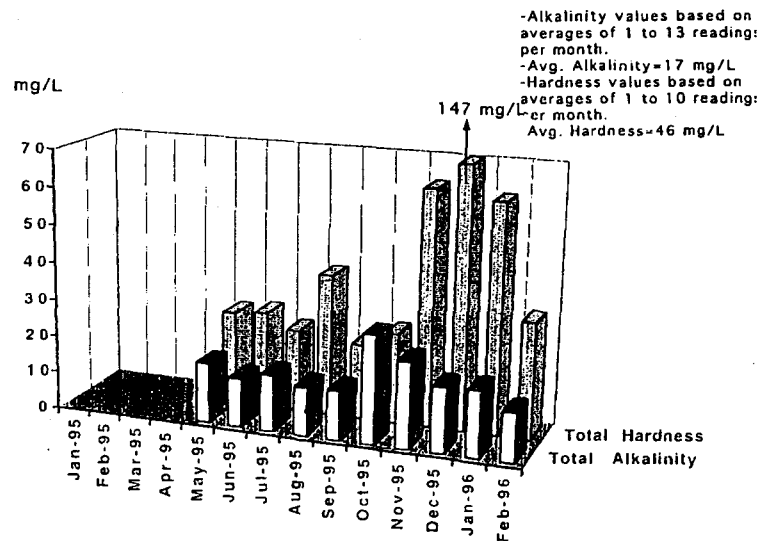
**pH for Magnolia River in Weeks Bay Watershed from January 1995 to February 1996**



**Total Alkalinity and Total hardness Comparisons for Fish River in Weeks Bay Watershed from January 1995 to February 1996**



**Total Alkalinity and Total hardness Comparisons for Magnolia River in Weeks Bay Watershed from January 1995 to February 1996**



## Effect on Aquatic Life

<b>3.0 - 3.5</b> Unlikely fish can survive for more than a few hours in this range although some plants and invertebrates can be found at pH levels this low.	<b>5.5 - 6.0</b> Metals (aluminum, lead) normally trapped in sediments are released into the acidified water in forms toxic to aquatic life.
<b>3.5 - 4.0</b> Known to be lethal to salmonids.	<b>6.0 - 6.5</b> Freshwater shrimp absent. Unlikely to be directly harmful to fish unless free carbon dioxide is high (in excess of 100 ppm).
<b>4.0 - 4.5</b> All fish, most frogs and insects absent.	<b>6.5 - 8.2</b> Optimal for most organisms.
<b>4.5 - 5.0</b> Mayfly and many other insects absent. Most fish eggs will not hatch.	<b>8.2 - 9.0</b> Unlikely to be directly harmful to fish, but indirect effects occur at this level due to chemical changes in the water.
<b>5.0 - 5.5</b> Bottom-dwelling bacteria (decomposers) begin to die. Leaf litter and detritus begin to accumulate, locking up essential nutrients and interrupting chemical cycling. Plankton begin to disappear. Snails and clams absent. Mats of fungi begin to replace bacteria in substance.	<b>9.0 - 10.5</b> Likely to be harmful to salmonids and perch if present for long periods.
	<b>10.5 - 11.0</b> Rapidly lethal to salmonids. Prolonged exposure is lethal to carp and perch.
	<b>11.0 - 11.5</b> Rapidly lethal to all species of fish.

In addition to direct effects on aquatic systems, pH effects many chemical processes. The toxicity of ammonia increases as the pH increases. Low pH can reduce the amount of dissolved inorganic phosphorous and carbon dioxide available to plankton. Low pH can also increase the risk of hydrogen sulfide toxicity.

# Landscaping with Native Plants Seminar

[PERFECT TIMING FOR FALL PLANTING]

Sponsored by

WEEKS BAY RESERVE FOUNDATION

MOBILE BOTANICAL GARDEN

FAULKNER STATE COMMUNITY COLLEGE

NO CHARGE

NO CHARGE

Fairhope Campus, Centennial Hall Auditorium  
Sept. 21, 1996 8:30 am - 3:15 pm

This workshop will provide a sound conceptual base as well as practical information for individuals interested in designing landscapes using native plants. It will provide information on ways to save time and money, as well as water and resources with a subtly tasteful, beautifully landscaped space as the result. Our experts have tailored this workshop for landscapers, garden club members, environmental consulting and engineering firms, and interested homeowners. It will focus on ecological landscaping - a design process that can achieve all of the above and more.

## AGENDA

8:30 - 9:30 am	Registration and Refreshments.	Maureen Nation
9:00 - 9:45 am	Why Natives?	Bill Finch
9:45 - 10:30 am	Basics "Don't Fight the Site." Site Evaluation and Inventory.	Pat Ryan
10:30 - 10:45 am	Break.	
10:45 - 11:30 am	Native Alternative. Native plants that can replace traditionally used landscape plants.	Terry Plauche Fred Johnson
11:30 - 12:15 pm	An Alternative Landscape Plan Demonstrations.	Terry Plauche Fred Johnson
12:15 - 1:45 pm	Lunch (on your own).	
1:45 - 2:30 pm	Care and Maintenance of Your Landscape: Best Management Practices.	Tony Glover
2:30 - 3:15 pm	Sources: Native Plant Sale Propagation Demonstration. Take cuttings. Don't dig from wild. Endangered and Protected Plants.	Tom Green Pat Ryan

**Early registration is not required but helpful.**

Register

by mail: Faulkner State Community College

440 Fairhope Avenue

Fairhope, AL 36532

by phone: (334) 990-0420

by FAX: (334) 990-0428

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY/STATE/ZIP \_\_\_\_\_

PHONE \_\_\_\_\_

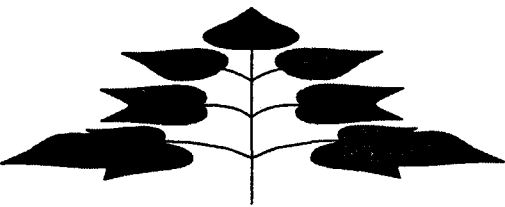
## Our natural heritage

The use of native plants in landscaping is a celebration of our natural heritage and an awakening of a land ethic first expressed by Aldo Leopold more than 50 years ago.

The natural processes from which natives evolve represent the cog and wheel of a healthy ecosystem sustained by a complex web of biological diversity.

Native plants have many inherent qualities and adaptive traits that make them aesthetically pleasing, practical, and ecologically valuable for landscaping.

Using native plants contributes to the health and often the restoration of an ecosystem. Landscaping with natives in an urban setting helps restore regional character and places fewer demands on resources.



### Native

species naturally occurring in a region (indigenous)

### Exotic

species introduced by humans, either deliberately or accidentally (alien, non-native)

### What are natives?

Natives are plants that evolved over geologic time and are distributed across the landscape largely in response to climatic episodes and adaptation to site conditions related to land formations.

Natives are generally defined as plants that occurred in North America before European settlement. This distinction is made because of the large-scale changes in the flora that have resulted since European settlement and the introduction of "exotic" plants.

Exotics are plants that are directly or indirectly, deliberately or accidentally introduced by human action. To be more precise, natives are natural elements of a regional landscape. While some species are native to North America, they may be exotic to South Alabama.

## Natives vs. exotics

While many exotics are harmless, others pose serious threats to biodiversity. Exotics that escape and naturalize change the floral composition of native plant communities. Exotics that invade native plant communities spread, out-compete, and displace natives. Other exotics are vectors for disease and exotic insects. Future introductions can be prevented by using native species.

Using natives also exhibits regional flora and promotes our natural heritage. Natives have often been overlooked and their aesthetic value ignored. Instead, many regions look the same because overuse of the same exotics has created a monotonous, predictable landscape.

## Basics about using natives

When landscaping with natives match the right plants with the right site conditions. Consider using plants that occur together in their natural habitats. Do your homework before planting; study the plants and the site condition. Visit a natural area and observe how plants occur and design your landscape accordingly. Buy nursery propagated plants. Remember, landscaping with natives is art imitating nature.

## Benefits of natives

- ◆ Adapted to regional conditions and may require less maintenance and are cost-effective.
- ◆ Hardy, withstand extreme winter cold, do not suffer from die back.
- ◆ Environmentally friendly, require fewer pesticides and fertilizers because of natural adaptations.
- ◆ Promote biodiversity and stewardship.
- ◆ Provide food and shelter for native wildlife.
- ◆ Restore regional landscapes.
- ◆ Prevent future exotic introductions.

## Natives for wildlife

Using natives for landscaping helps sustain native butterflies, moths and other beneficial insects; native birds, reptiles, mammals, and other fauna. Fall migrating birds depend on high-energy fruits from Flowering Dogwood and Youpon Holly. Spring migrants feed on insects that occur on oak trees. American Beech and other native trees provide nesting habitat, while Eastern Red-cedar, Longleaf Pine, and American Holly provide winter cover and food.



- ◆ Don't dig plants from the wild.
- ◆ Buy nursery-propagated plant material.

## Alkalinity

Natural waters contain a variety of dissolved chemicals referred to as total dissolved solids. The variety and relative abundance of these solids will depend upon rocks and soils with which the water has been in contact. Highly leached or insoluble surfaces lead to low quantities of dissolved solids; high dissolved solid levels are found where soils and rock formations are more soluble. For example, ground water from sand deposits will have low dissolved solids while ground water from limestone areas will have higher levels. Although a great variety of elements may be included in the aggregate of dissolved solids typical substances include: bicarbonate ( $\text{HCO}_2$ ), sulfate ( $\text{SO}_2$ ), chloride (Cl), calcium (Ca), magnesium (Mg), and/or sodium (Na).

These dissolved materials have many roles in on-going chemical and biological processes in aquatic systems. Among these are their ability to buffer water. Buffer solutions are mixtures of an acid and a base which have the property that the addition of acids or bases causes a relatively small change in pH. The presence of buffering materials helps to neutralize acids as they are added to, or created in, the water ecosystem. As an example, carbon dioxide (an acid) absorbed from the atmosphere, from ground water, or produced by respiration is buffered by bicarbonate or carbonate ( $\text{CO}_3$ ). In waters with bicarbonate or carbonate, when carbon dioxide concentrations increase there is only a slight decrease in pH because additional  $\text{H}^+$  from carbon dioxide dissolving in water will react with  $\text{CO}_3$  or  $\text{HCO}_3$  rather than greatly affecting pH.

Alkalinity is commonly thought of as a measure of the bicarbonate and carbonate present in water. In fact, TOTAL ALKALINITY is defined as the concentration of titratable bases and includes a number of other bases such as hydroxide, phosphate, silicate, and ammonia. However, in most waters bicarbonate and carbonate are usually responsible for nearly all measurable alkalinity. Total alkalinity is expressed as milligrams per liter (mg/l) or equivalent calcium carbonate ( $\text{CaCO}_3$ ).

## Measuring Alkalinity

Alkalinity is measured by adding an acid of known concentration dropwise to a carefully measured sample until the pH of the sample drops to a specific level as shown by a color change of an indicator (endpoint). If a lot of acid, alkalinity is high; addition of small quantities of acid indicates lower alkalinity. Some test kits include indicators for other forms of alkalinity such as bicarbonate, carbonate, or hydroxide alkalinity. However, the standard monitoring parameter is total alkalinity.

*"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

## What Measured Levels May Indicate

As increasing amounts of acid are added to ponds and lakes, their buffering capacity is consumed. If surrounding soils and rocks supply additional buffering materials, the alkalinity level may eventually be restored. However, a temporary loss of buffering capacity can permit pH levels to drop to levels harmful to aquatic life. An entire season of acid precipitation can be stored in the form of snow and ice. Areas which receive a lot of snowmelt each spring are especially susceptible to seasonal loss of buffering capacity.

The pH of water does not decline evenly as acid contamination proceeds. The natural buffering materials in water slow the decline of pH to around 6.0. The gradual decline is followed by a rapid pH drop as the bicarbonate buffering capacity is used up. At pH 5.5, only very weak buffering materials remain and the pH drops further with additional acid. Sensitive species and immature animals are affected first. As food species disappear, larger and more resistant animals are affected.

The productivity of an aquatic system is significantly influenced by alkalinity. In low alkalinity situations nutrients such as nitrogen and phosphorus are not readily utilized by plants. When alkalinity is above 20 mg/l there is a marked increase in nutrient utilization.

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**LEVELS BETWEEN 20 AND 200 ppm  
ARE TYPICALLY FOUND IN FRESHWATER**

**TOTAL ALKALINITY OF 100 TO 200 ppm  
STABILIZES THE pH IN A STREAM**

**TYPICAL SEAWATER HAS AN ALKALINITY  
OF 100 TO 124 ppm AS  $\text{CaCO}_3$**

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## New Directions

Sharks are a vital marine resource. In fact, scientists are investigating why they are resistant to cancer. Researchers are looking for an extractable, nontoxic substance from shark cartilage which might be involved in controlling tumor growth. Shark corneas, which are similar to those of mammals, have been transplanted successfully in humans. Shark cartilage yields chondroitin, an important substance in making synthetic skin for burn victims. Much of what we know about human kidney function was learned from studying sharks. Sharks have become an endangered resource because of their popularity for food and sport.

## Hardness

Total hardness is the measure of another group of substances comprising the total dissolved solids. It is defined as the concentration of metal ions in water expressed as milligrams per liter (mg/l) of equivalent calcium carbonate. It is generally related to total alkalinity because the bases measured by alkalinity and the metal ions measured by hardness, normally come from the same solution of carbonate minerals.

Hardness refers primarily to the amount of calcium and magnesium in the water enter water mainly by leaching of rocks. Calcium is an important component of aquatic plant cell walls and the shells and bones of many aquatic organisms. Magnesium is an essential nutrient for plants, and is a component of the chlorophyll molecule.

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WATER HARDNESS	AS ppm CaCO <sub>3</sub>
Soft	0 to 20
Moderately Soft	20 to 60
Moderately Hard	61 to 120
Hard	121 to 180
Very Hard	> 180

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## What Measured Levels May Indicate

There are no health standards for water hardness, but hard water causes problems in home and industrial water systems, including scaly deposits in plumbing and appliances and decreased cleaning action of soaps and detergents.

Total hardness values frequently follow closely those for total alkalinity -- i.e., waters with high total alkalinity will have high total hardness and vice versa. However, arid regions, where high evaporation may concentrate ions, can have total hardness values considerably greater than those for total alkalinity. When the total hardness of water is greater than its total alkalinity, the excess is called "non-carbonate hardness" and indicates the presence of chloride and sulfate ions. Conversely, in coastal areas ground waters may have high alkalinity and low hardness when bicarbonate and carbonate are associated with sodium and potassium rather than calcium and magnesium.

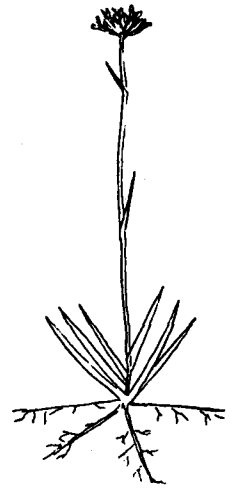
*"A weed is a plant whose virtues have not been discovered."*

Ralph Waldo Emerson

## Redroot

Look for Redroot (*Lachnanthes caroliniana*) in and around the pitcher plant bog. The common name comes from the fact that the rhizomes and roots contain a blood-red sap that was formerly used as a dye. It is a perennial herb up to three feet tall with stems that are hairy near the tip. The basal, erect leaves are about 12 inches long and resemble those of iris. The small yellow-brown flowers are less than one half inch long and form a dense, flat to rounded cluster at the tip of the stem. The seeds are dark brown and flattened.

Redroot is common in wet habitats such as moist pinelands and bogs, and be seen from June through October. Although Sandhill Cranes are known to consume great quantities of this species, the plant is thought to contain some unknown toxin. Ingestion by humans has resulted in dizziness and headache. Old legends say that the root of this plant is fatal to white pigs, but not to black pigs. Of course, this is unconfirmed by biologists.



**REDROOT**

## Schedule of Events at the Weeks Bay Reserve

<b>August</b>	
12	Weeks Bay Watershed Project Citizens Advisory Committee Meeting Site: Weeks Bay NERR, 7:30 p.m.
<b>September</b>	
9	Weeks Bay Watershed Project Citizens Advisory Committee Meeting Site: Weeks Bay NERR 7:30 p.m.
10	Guest Lecture Series <i>"Marine Debris"</i> Jenny Cook, Dauphin Island Sea Lab Site: Centennial Hall, Faulkner State Comm. Col. Fairhope Campus, 7:00 p.m.
14	Weeks Bay Water Watch Volunteer Monitors Conference Site: Weeks Bay NERR
21	<i>"Landscaping with Native Plants"</i> Site: Centennial Hall, Faulkner State Comm. Col. Fairhope Campus, 9:00 a.m. - 4:00 p.m.
21	<i>National Coastal Clean-Up Day</i> 8:00 a.m. - 12:00 Noon Lunch provided for clean-up volunteers Site: Weeks Bay NERR
28 - 29	Native Plant Sale Sponsored by the Weeks Bay Volunteers Sat. 9:00 a.m. - 5:00 p.m. / Sun. 1:00 p.m. - 5:00 p.m. Site: Weeks Bay NERR

## Education Programs

Spring arrived and brought with it a flurry of activities. March, April and May are our busiest months for school groups to visit the Interpretive Center. They were greeted by a new boardwalk loop complete with native azaleas and blooming water lilies. Students who visit Weeks Bay Reserve spend much of their time on the boardwalk trying to catch a glimpse of some of the wildlife. Most groups are fortunate enough to see blue-tailed skinks, green anole lizards, birds, squirrels, spiders and an occasional snake basking in the sun.

Because of the natural beauty of the reserve, many teachers make Weeks Bay an annual field trip for their classes. Because many area students return to the Reserve each year it has become necessary to develop different activities for each grade level. This summer the Education Coordinator, Margaret Holcombe, will be designing some grade specific activities which will be incorporated into the school programs this coming fall.

Weeks Bay Reserve would like to extend a special thanks to the volunteers who give their time to help with over 4,000 students who visited the Reserve this school year. Without volunteers many of our educational programs could not exist. Through sharing their experiences and wisdom with school children, these volunteers are helping to shape the environmental future of Baldwin County.

During the Tenth Anniversary Celebration in April several high school service organizations helped with setting up chairs, serving refreshments, selling T-shirts, face painting, presentation of colors and entertainment. We would like to thank the following schools for their work: **Robertsdale Honor Society and Color Guard, Foley Key Club, Daphne Environmental Club and Fairhope Top of the Bay Chorus.** In addition, **Boy Scout Troop #447** helped with parking and directing people from the parking area to the Interpretive Center.

The educational programs shift from students to teachers during the summer months. June 25-28 Weeks Bay Reserve and Faulkner State Community College hosted a Watershed Workshop for Educators. July 24-25 the teachers involved in the Estuary Net Curriculum met to evaluate and assess the program.

### Consider a Conservation Gift

You can receive an income tax deduction and obtain the satisfaction of making a significant gift to The Weeks Bay Reserve Foundation. You can be assured that your financial contribution will be used to enhance the goals and objectives of the Weeks Bay National Estuarine Research Reserve. For information, contact: Planned Giving Program, Weeks Bay Reserve Foundation, 11300 U. S. Highway 98, Fairhope, AL 36532.

## DID YOU KNOW?

Studies indicate that each year one or two million seabirds and more than 100,000 marine mammals, including whales, seals, dolphins and manatees die as a result of ingestion of plastic cups, bags, six pack yokes, fishing gear and other forms of plastic trash thrown or washed into the world's oceans.

## Nature's Calendar

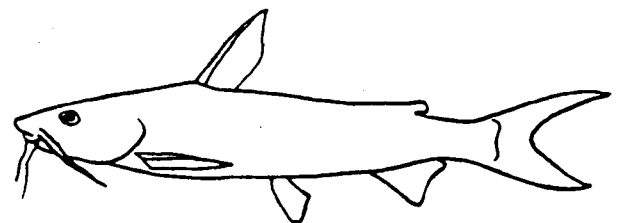
Sea catfish (*Arius felis*) are most abundant in Mobile Bay from August through October. They move out of the shallow portions of the estuary during the winter and are uncommon from November through April.

Spawning occurs during the spring along the barrier islands. The female produces and deposits small numbers of marble size eggs in sandy depressions, then her parental requirement is concluded. Males fertilize the eggs and then pick them up and carry them inside of their mouths. Sea catfish practice oral gestation (the mouth is used as an oral incubator). Each male carries from 10 to 55 developing eggs in his mouth cavity and migrates from the saline Gulf to the brackish estuaries.

Developing embryos are provided with safety and perfect aeration at one and the same time while in the mouth of the male. The young absorb all of the yolk from the eggs in approximately 30 days and average about 1-3/4 inches in length. They are retained in the mouth of the male for an additional 2 to 4 weeks after they have begun to feed independently. The male does not appear to take any food during this period. Hatchlings are liberated when they reach about 2-1/4 inches in length.

Incubating males have been collected in Mobile Bay from the first week of May through the first week of August. Newly released hatchlings grow rapidly in the warm shallow estuaries where food is plentiful. Numerous small schools of hatchlings are frequently observed in the shallow portions of Mobile Bay in late July, August and September. The growth rate is about 1/2 inch per month. Cooler water temperatures in the fall drastically slow down the growth rate and the young sea catfish move out of inshore waters.

This is one of the smallest marine catfishes, rarely exceeding a foot, mostly less than a pound and a half. Maximum size is about two feet in length.



SEA CATFISH

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

## 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  
Fairhope, AL 36532

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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.



**INSHORE LIZARDFISH**  
*Synodus foetens*