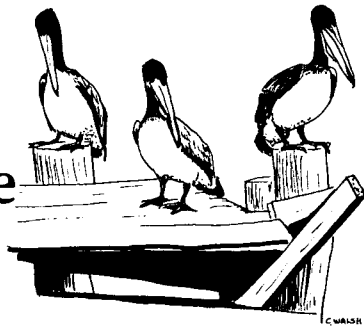


The Pelican Post

WEEKS BAY
NATIONAL ESTUARINE RESERVE NEWSLETTER
JUNE, 1987

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

Advisory Committee Update



The Reserve Advisory Committee met for the third time April 2, 1987, at Beckwith Lodge. Project Manager, Frank Christhilf, from the Marine and Estuarine Management Division of NOAA attended the meeting and discussed the second year of operations and property acquisition. He explained that the National Estuarine Reserve Research System was created by Congress to give states a way to protect pristine estuaries, to conduct research, and to enhance public awareness. The NERRS program encourages states to identify sites for reserves with a 50-50 federal/state match. NERRS wants to develop a strong national system, establish a network of national research and educational facilities, and increase channels of communication among various federal and state agencies and the general public. He stated that the Weeks Bay Reserve has all of the ingredients to be an important part of the system in terms of education, resources and people.

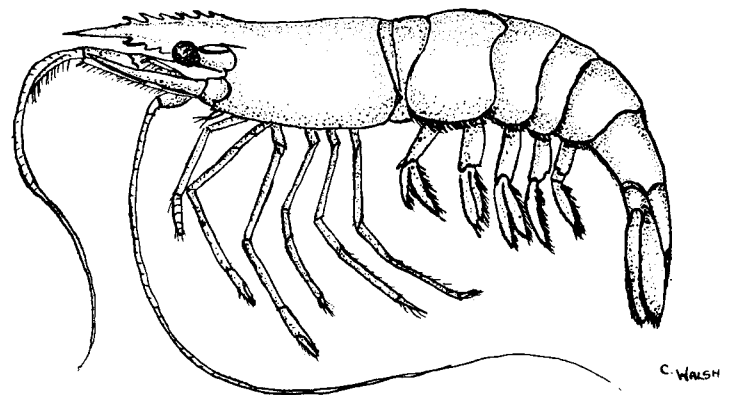
The Alabama Department of Conservation and Natural Resources is planning to mark and delineate Reserve boundaries this year.

The terms of the Reserve Advisory Committee members have expired, and a new committee will be appointed in the near future by Governor Hunt.

Grass Shrimp

The transparent grass shrimp (*Palaemonetes pugio*) is extremely abundant and plays important roles in Weeks Bay. These little shrimp occur along the water's edge, and take refuge from predators in the marsh grass at high tide. They live around rock jetties, on the bottom of tidal creeks and in submerged grassbeds.

Particulate organic matter involved in the decomposition of dead organisms is called detritus, and animals that eat detritus are called detritivores. Grass shrimp are scavengers and feed on detrital material washed in from the rivers and tidal creeks. They pluck away at the surface of dead leaves and stems, breaking them into smaller pieces that are colonized by bacteria and diatoms. Inefficient assimilation repackages the detrital material into fecal pellets and excretes large quantities of ammonia and phosphates into the water. Grass shrimp also prevent the buildup of detritus in submerged grassbeds by feeding on it and reducing it to fine sediment. By their action on the detrital material grass shrimp make nutrients and biomass available for other trophic levels.



Males and females may be distinguished by the shape of the second pair of abdominal appendages modified as copulatory organs in the male. Females attach their fertilized eggs to their abdominal appendages. The eggs are aerated by the rhythmic beating of the appendages and kept free of detritus by frequent cleaning. The number of eggs carried per female depends upon her size, but ranges from 100 to 700. Spawning occurs in July and October. Those young spawned in the summer grow to

(Continued on Page 2, Col. 1)

More About Grass Shrimp . . .

(Continued from Page 1)

maturity in two to three months. Those spawned in the fall require four to six months. Grass shrimp can live for one year.

Although many grass shrimp are eaten by various small fishes, their ability to live in a low-oxygen environment limits predation and competition and allows the population to reach the high levels necessary to function as major detritivores. Thus grass shrimp, although of little economic importance to man, (some are sold for fish bait under the name "seed shrimp") play a major role in the cycling and retention of nutrients. The worth of a species cannot always be measured in terms of economic values.

Research Continues At Weeks Bay

The National Oceanic and Atmospheric Administration (NOAA) has awarded \$36,488 to Marine Environmental Sciences Consortium (MESC) researchers for 1987-88 studies. Names of the scientists, totals awarded, and a project summary of the research includes:

John Dindo (MESC) and Dr. Ken Marion of the University of Alabama in Birmingham, \$9,978 to study the natural history of the Reserve. The major objective of this grant is to enhance public awareness and education on estuarine ecosystems, their functioning, and their problems. This will be accomplished by conducting an extensive non-fish vertebrate field survey of the Reserve. Occurrence, seasonal abundance, and distribution within specific habitat types within the Reserve will be documented. The data will be summarized in a printed field guide/checklist of those organisms to be found within the Reserve and where they are to be located. These prepared materials will be made available to teachers and school children visiting the Reserve or for use in their curriculum studies, to educational groups utilizing the area, and perhaps eventually to the general public, upon establishment of an interpretive or visitor center program.

Dr. Will Schroeder (MESC), \$26,510 for the purpose of determining the hydrographic, water level elevation, circulation and bottom sediment characteristics of Weeks Bay. The overall objectives of this second year research effort are:



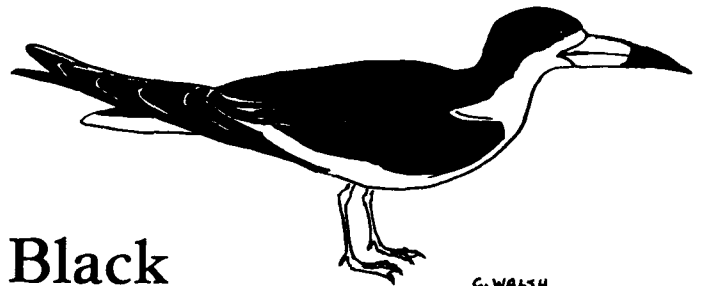
1) provide an additional 12 months of field data to the "Baseline" documentation of the hydrographic, water level elevation and circulation characteristics of Weeks Bay;

2) determine the nature (size distribution and heavy metal, organic hydrocarbon and pesticide content) of the upper one meter of sediment that would be removed from the existing navigational channels if maintenance dredging of these channels is ever permitted; and

3) serve as a "sounding board" in determining whether additional baseline studies and/or long term environmental monitoring programs might be warranted in order to define, track and understand natural changes and/or anthropogenically driven changes in Weeks Bay.

The specific research objectives include documenting, for a second 12 month period, the hydrographic (temperature, salinity, dissolved oxygen, ph, total suspended solids, light penetration and chlorophyll a) characteristics on a monthly and storm event basis and the water level elevation and water current characteristics on a continuous basis. This will permit a description of the seasonal hydrographic patterns, including the impact of storm events, and a description of water level elevation and circulation patterns based on two years of field data.

Three new research proposals have been submitted for funding for FY88. These are being reviewed by a research subcommittee and NOAA.



Black Skimmers

The unmistakable black skimmers (*Rynchops niger*) are fairly common birds of coastal Alabama, where they occur on bays, canals and beaches. They are close relatives of the gulls and terns. Standing on a sandbar the birds line up, closely spaced, head to wind. Their slim black bodies, the upward-slanting, folding wing tips and large, downward-pointing bill and short legs with webbed feet give them a very distinctive appearance. Males are larger than females and this size difference is noticeable in flocks.

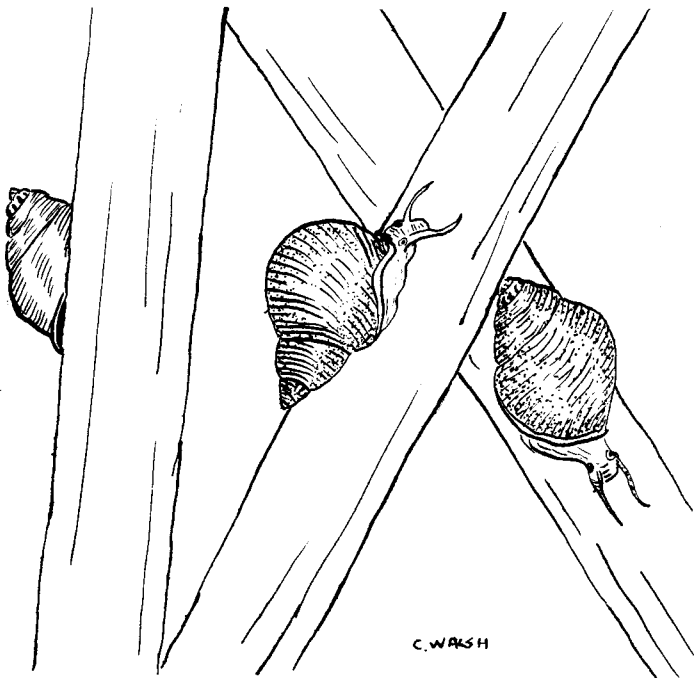
These curious birds are remarkable for the shape of the bill. It is scissorlike, flattened laterally to knifelike thinness, and the lower mandible is longer than the upper mandible. This species feeds by skimming the surface for small fish and crustaceans with the lower mandible. The skimmer's flight is very swift, agile, and graceful, and the birds appear to float along with little effort.

The species is more or less nocturnal in habit, and long after dark the soft, short barking notes may be heard as the birds follow the shoreline. They usually nest and rest in association with other colonial seabirds on sand beaches, and in recent years have used a dredge-spoil island in Mobile Bay.

Marsh

Periwinkles

Stands of cordgrass, (*Spartina alterniflora*), are a prominent feature along the shore of Weeks Bay. Marsh periwinkles, (*Littorina irrorata*), are small yellow brown snails that live on the sturdy stalks. Faint lines on the shells, similar to the venation of the cordgrass leaves, and the shape of the shells, reminiscent of bent cordgrass leaves, effectively camouflage them when viewed from above.



On the gulf coast, tides flood and ebb once every 24 hours 50 minutes, and marsh periwinkles adjust to this regular pulse. They climb the cordgrass stalks to escape the rising tide and while on the stalks they secrete mucous around the perimeters of their shells. This permits the snails to withdraw into their shells and prevents desiccation. When the tide recedes, the snails descend the stalks and crawl about on the mud, grazing on microscopic algae and diatoms.

Marsh periwinkles have separate sexes and reproduction is accomplished by internal fertilization. Eggs are released into the water in single capsules. These planktonic eggs develop within the capsules and hatch as free-swimming larvae. During this stage, small shells are developed as they transform into miniature adults settling on the nearest cordgrass stalks. Many young snails are present during the summer and early fall months, but not all survive to adulthood due to physical hazards and predation.

Educational Efforts

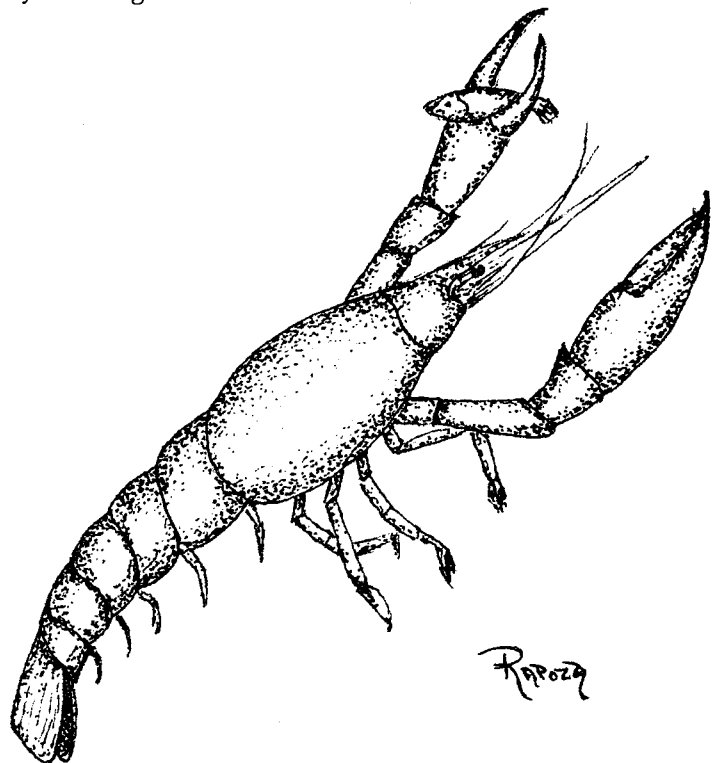
Ongoing and planned educational efforts were presented to area scientists and educators at a recent "Symposium on the Natural Resources of the Mobile Bay Estuary". Along with the presentation, the newly acquired Weeks Bay National Estuarine Reserve display unit was on hand for the symposium's poster sessions.

Like the Reserve, this symposium resulted from a broad base of support within the local community, state and federal government. The symposium sponsors included: Alabama Department of Economic and Community Affairs; U. S. Environmental Protection Agency; Mississippi/Alabama Sea Grant Consortium; U. S. Army Corps of Engineers; U. S. Fish and Wildlife Service; Alabama Sea Grant Extension Service; Coastal Research and Development Institute; Alabama Conservancy; Alabama Sierra Club; Coastal Land Trust; Coastal Environmental Alliance; Fowl River Protection Association; Mobile Bay Audubon Society; Mobile County Wildlife and Conservation Association.

Many of these agencies and organizations are intimately involved with the Weeks Bay National Estuarine Reserve and look forward to the Reserve's contributing to the public's appreciation of estuarine ecosystems.

Public reaction at several public, educational and scientific meetings in the state have been very favorable to the recently produced, portable exhibit on the Reserve.

In March, Education Coordinator Linda Feix, of Old Woman Creek Reserve, visited Weeks Bay and met with Dr. John Borom (Faulkner State Junior College) and Bill Tucker (Game and Fish Division) to discuss education plans and needs for the Weeks Bay Reserve. The trip was made possible with a NOAA Education Grant awarded to Old Woman Creek Reserve to develop educational components for strengthening communications among Reserves and increasing public awareness of the importance of estuarine areas and of the National Estuarine Reserve Research System Programs.

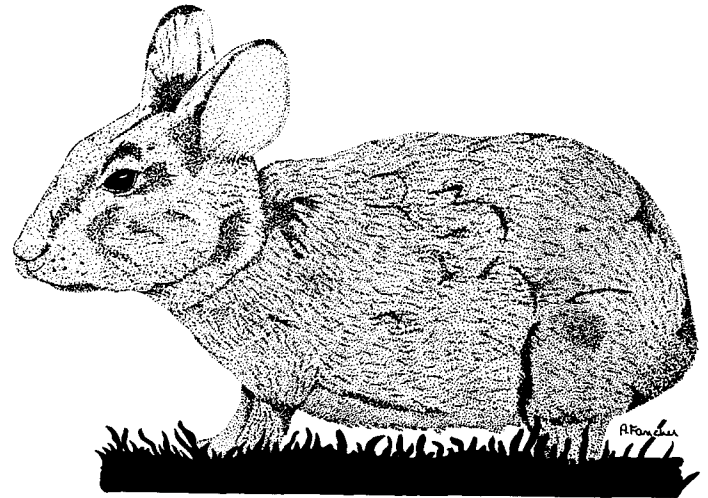
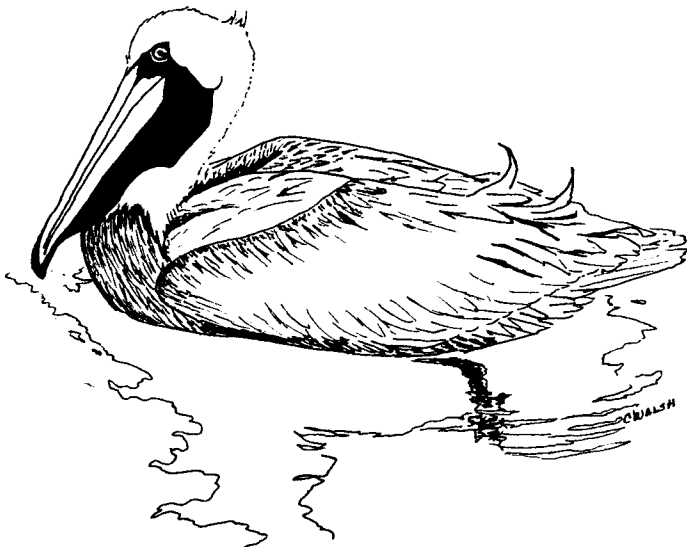


Value Of Tidal Marshes

Because marshes occur along the edge of the sea, they are valuable in controlling floods that come from the sea. Because they occur in front of the land, they take the brunt of blows delivered by storm waves. The water is quite shallow over the marshes, even during the highest storm tides. Shallow water makes waves break and as they break they expend the energy stored in them by storm winds. Braking waves can cause enormous damage. They have been known to move solid breakwaters weighing over one thousand tons, to destroy small islands, and to throw rocks two hundred feet into the air.

Most of the damage caused by waves occurs where the waves first break. On a marsh, this is often where the bank rises from low tide level. Although pieces of it may be washed away, or it may be partly covered with sand washed up by the storm and smothered, whatever happens, the marsh is a living thing. It can rebuild itself. The grasses can again grow out into the damaged area. New sediment can be trapped and bound into a firm substratum which further increases the growth of the grasses. The marsh can recover, become as it was, all without help or money cost. But, if the marsh is destroyed, covered with dredging spoils and then with houses or industrial buildings, or converted into marinas, these structures can be damaged by waves. This involves a money cost because a building cannot repair itself.

After a severe hurricane, people all over the country are asked to contribute voluntarily or through taxes to aid those who suffered storm damage. We naturally help those who have been damaged by acts of nature. But it would be much less expensive to buy the marshes and preserve them than to allow development and pay the cost of damages that should never have occurred.



The Marsh Rabbit

The marsh rabbit (*Sylvilagus palustris*) is a small to medium sized, blackish brown or reddish colored rabbit with coarse hair, short broad ears and short legs. The feet are small and are reddish brown above and darker below. Its tail is small and inconspicuous and is dingy gray or brownish underneath, lacking the fluffy white of a cottontail or swamp rabbit. The marsh rabbit is Alabama's only rabbit that does not erect a cottony white tail as it runs. Adults are between 14 and 17 inches long and weigh between 2 and 3 pounds.

This species inhabits the marshes and lowland thickets along the coastal plane from southeastern Virginia, south through peninsular Florida and west through the Florida panhandle to Mobile Bay. In Alabama the marsh rabbit is a peripheral species that is primarily found in the coastal marshes of Baldwin County. This rabbit has also been noted rarely in wetlands farther inland along the southern tier of Alabama counties.

The marsh rabbit is a strong swimmer and takes to water willingly and frequently. When threatened, it takes to water and may then float with only eyes and nose exposed. To elude a pursuer if cut off from water, it will run a zigzag trail, but its shorter legs make it less agile on land than other rabbits. On land it often walks, rather than hopping, along well-worn trails through the marsh.

Because of its specialized habitat requirements, peripheral distribution, and the limited amount of coastal habitat in Alabama, the marsh rabbit is probably rare except in coastal Baldwin County. The security of the primary Alabama populations in coastal Baldwin County depends on maintaining the quality of wetland habitat.

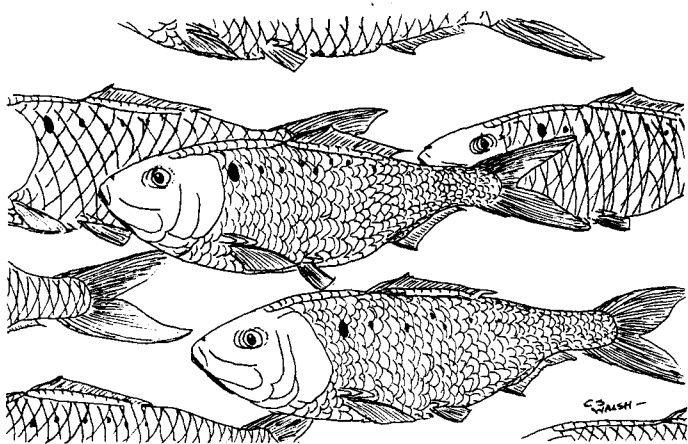
Gulf Menhaden

The commercially important Gulf menhaden (*Brevoortia patronus*) is especially abundant in Weeks Bay. Spawning takes place from late October to early March following a migration well offshore, but the species requires estuaries as nurseries. Young first appear in Alabama estuaries in December. During the spring, summer and fall, they congregate in schools and grow rapidly in the nutrient rich waters.

Spotter planes locate massive schools in the Gulf and in the Mississippi Sound, and purseseiners encircle and harvest more than 500,000 tons per year, to be rendered as fish meal and fish oil. Fish meal is a protein concentrate taken from raw fish, by the process of cooking, pressing, and drying. It is used principally as an additive to poultry, catfish, hog and domestic animal feed. Some grades of fish meal have been used in the fertilizer industry. Fish body oil represents the fatty portion of raw fish and is used for margarine, paints, floor coverings, soap, etc. Menhaden oil contains a substance that may aid in treating atherosclerosis (condition in which fatty substances accumulate abnormally on the inner linings of arteries).

Within the United States, menhaden provide about three fourths of the total fish meal production and 85% of fish oil. In terms of weight, this is the most important marine species of our commercial fishing industry.

As well as being economically important, Gulf menhaden undoubtedly represent a significant food source for many animals in Weeks Bay.

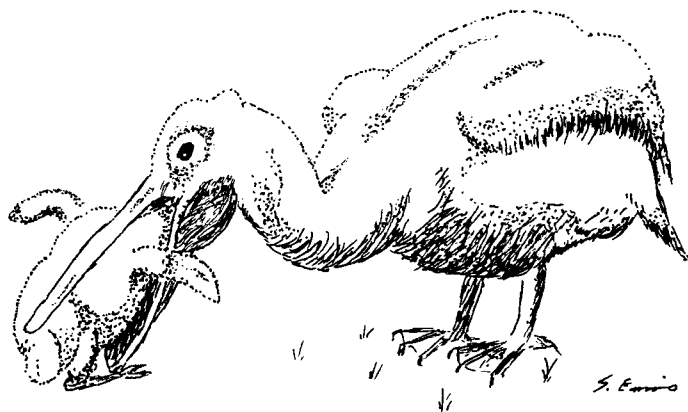


Brown Pelicans

The brown pelican (*Pelecanus occidentalis*) is one of the world's largest birds. Adults measure 50 inches from their broad webbed feet to the tip of their 12 inch bill.

They breed in colonies on lonely shores and isolated islands. There they build nests of sticks, coarse grass, and weeds on the ground or in low bushes. Pelicans can nest two times in a single year but usually produce young only once. The first nesting effort takes place in April or May, then again in June or July.

Brown pelican chicks are hatched naked and pink, turning to a purplish hue after 24 hours. On close observation pin feathers can be seen protruding through certain areas of the skin, and down feathers can barely be seen just under the skin. At this age the chick must be closely guarded by the parents since they

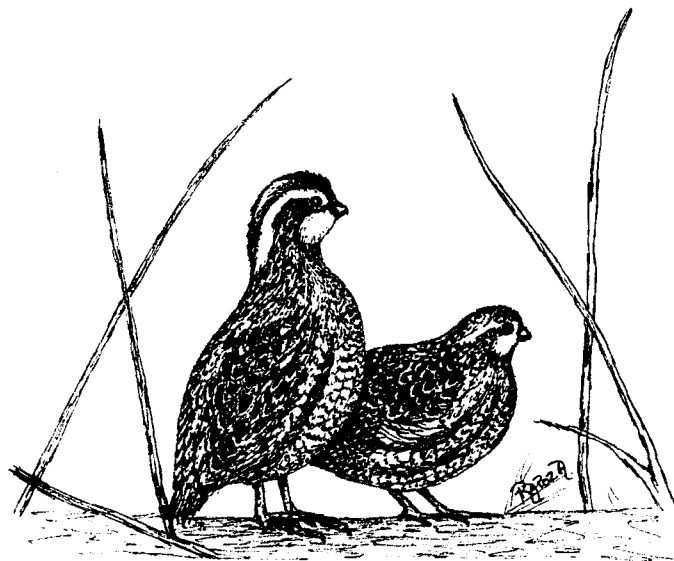


cannot yet regulate their body temperature.

Soft white down will have completely covered the body by 3 to 3½ weeks; at this age, the chicks do not require as much protection, and by the time they are ready to fledge (leave their nests) at 11 or 12 weeks, all major feathers will be in.

Young pelicans plunge deep into the gullets of their parents and feed on regurgitated fish the parents have caught. By the time the pelican chicks are old enough to fly, each one will have eaten more than 150 pounds of food. Two months after hatching and before they fledge, young pelicans can weigh more than their parents. This type of excess weight development gives them energy to use when they begin to grow feathers and to exercise muscles.

The first modern Alabama breeding record occurred in 1983 when four nests produced two young pelicans on an isolated dredge-spoil island in Mobile Bay. Prior to this date the species had not bred in the state since before 1900. In 1984 ten nest produced 20 young. In 1985, 150 nests produced more than 300 young, and in 1986, 250 nests produced more than 500 young.



The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation, increased and not impaired in value.

Theodore Roosevelt

Funds for the publication of this newsletter provided by the National Oceanic and Atmospheric Administration, National Ocean Service, Office of Ocean and Coastal Resource Management; and the Alabama Department of Conservation and Natural Resources, Guy Hunt, Governor, and James D. Martin, Commissioner Department of Conservation.

Published by the Alabama Sea Grant Extension Program in cooperation with Faulkner State Junior College.

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Illustrations

Eastern Shore Art Association Wildlife Art Class

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.

MASGP-87-016-1

This work is a result of research sponsored by NOAA Office of Sea Grant, Department of Commerce, under Grant No. NA85AA-D-SG005. Issued in furtherance of Cooperative Extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. The Alabama Cooperative Extension Service, Auburn University, Ann E. Thompson, Director, offers educational programs and materials to all people without regard to race, color, national origin, sex, age, or handicap and is an equal opportunity employer.

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