

N330.6  
AR67  
4:2

# AROUND

News of the  
Coastal Bend's Bays and Estuaries

Vol. 4, No. 2 - Spring 1998

Government Publications  
Texas State Documents

AUG 19 1998

Depository  
Dallas Public Library



# THE BEND

## Seagrass Bed Scarring Moderate to Severe In Areas of the Coastal Bend

Fishing, tourism, and other recreational activities are recognized as big business for the Coastal Bend. It is estimated that tourism provided \$470 million in sales and generated more than 10,800 local jobs in 1995. But what kind of ecological pressures does this type of activity place on one of the most biologically productive submerged habitats in the state — seagrass beds? These habitats are the basis for what makes this region a prime destination for many anglers and tourists.

Seagrass meadows in the region are an important component of the estuarine ecosystem, and comprise about 40 percent of seagrasses statewide. They provide a food source for game fish and other animals; serve as nursery areas for fish, crabs, and shrimp; are a major contributor of organic material for nutrient recycling; reduce erosion by stabilizing sediments; and improve water quality.

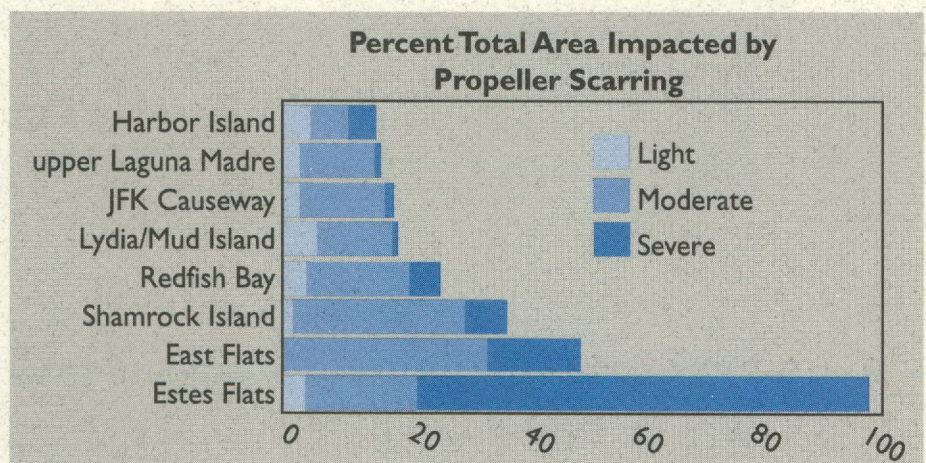
In Florida, the impacts to seagrasses resulting from recreational boating have long been recognized. Now, a recent CCBNEP characterization report quantifies these effects in the Coastal Bend. The report is the second volume of a larger report entitled, "*Characterization of Anthropogenic and Natural Disturbance on Vegetated and Unvegetated Bay Bottom Habitats in the CCBNEP Study Area*" and was completed by Kenneth Dunton, Ph.D., University of Texas Marine Science Institute at Port Aransas.

Propeller scarring of seagrass beds occurs when boats travel in water that is too shallow. These activities cause direct physical damage to seagrasses. Dr. Dunton, Assistant Professor and research scientist at UTMSI, reported that "the nature of the scarring, linear traces that are 30-60 cm in width, along with field observations, strongly suggest that this scar-

ring is the result of boat traffic (i.e., propeller damage)."

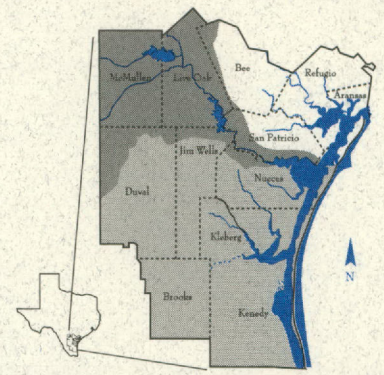
Results indicate that of the 16,302 acres examined, 5,434 acres were identified

'Seagrass' next page



### ON THE INSIDE

- Septic Systems Evaluated Page 2
- Cove Park Biofilter Page 3
- Coastal Bend Land Trust Page 4
- Bay Summit Page 4
- Neighborhood News Page 5
- Education Station Page 6



Corpus Christi Bay National Estuary Program Project Area



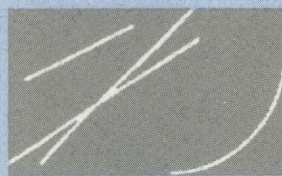
## 'Seagrass' from page 1

as either moderately or severely scarred. Estes Flats in Aransas Bay revealed the greatest scarring with over 97 percent of the grass beds scarred, 75 percent of which were rated as severe. Other popular recreational boating areas also exhibiting moderate and severe scarring include East Flats on the backside of Mustang Island and Redfish Bay.

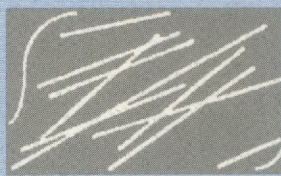
Research concludes that scarring may be extensive in these areas due to the proximity of dense boating populations. Secondary causes may include boaters looking for shortcuts across flats; access to shallow seagrass beds from channels built for commercial activities; and illegal use of PVC poles as navigational aids to mark channels directly through grassbeds.

Once seagrass beds become damaged, the recovery process can be quite slow, taking up to 10 years, depending on the type and location of seagrass. Some seagrasses such as Turtlegrass (*Thalassia testudinum*) take longer because of their slow growth. Others, such as the domi-

Representation of the three primary categories of scarring intensity.



Light



Moderate



Severe

nant Shoalgrass (*Halodule wrightii*), are opportunistic, fast-growing species capable of invading bare areas and recovering relatively quick. Floridians note that in areas where scarring has taken place, wave action promotes erosion resulting in deeper areas, increased sediment resuspension, ultimately inhibiting seagrass growth through increased turbidity.

Undoubtedly, propeller scarring disrupts the continuity of seagrass beds and the ecological role they play. One of the goals of the **Coastal Bend Bays Plan** is to promote greater public awareness of the biological importance of seagrasses

to our bays and estuaries, and the proper care that individual boaters can exercise to minimize additional damage.

Other management actions include improved navigational markings for secondary channels and additional research to understand the long-term changes in seagrass communities.

For more information, contact Sandra Alvarado at 512/980-3420.



## Septic Systems Evaluated

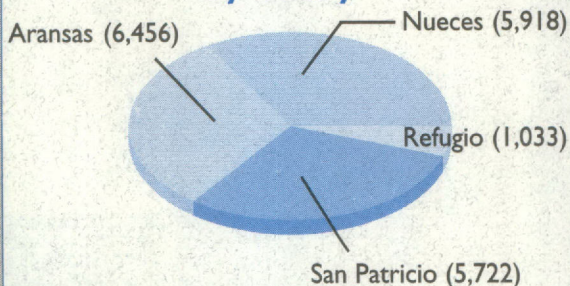
Many communities in the Coastal Bend are not connected to municipal sewer systems. Instead, they rely on individual septic systems — also known as on-site sewage facilities (OSSF) — to treat household wastewater. Under good conditions, OSSF systems can be designed and built to adequately treat wastewater. However, under poor conditions they fail and may degrade surface and/or groundwater resources. When failed systems are located adja-

cent to rivers or estuaries, pollutants such as nutrients and harmful bacteria are released and may cause health problems, algal blooms, and offensive odors. Secondary effects may include beach closures and shellfish bed closures. Chronic nutrient loading may support sustained algal growth, which can suffocate seagrasses.

A CCBNEP study was conducted to better understand OSSF systems in four key Coastal Bend counties. The report, "Study of On-Site Sewage Facilities," was completed by Naismith Engineering and will be available later this spring. The purpose of the study was to compile information on OSSF systems and summarize management issues relating to op-

see 'Septic' page 5

Total Number of OSSF Systems by County



*Around the Bend* is produced quarterly by the Corpus Christi Bay National Estuary Program with funding from the U.S. Environmental Protection Agency and the Texas Natural Resource Conservation Commission. For more information about the Program, call 512/980-3420.

Contributors to this issue include Sandra Alvarado, Doug Baker, Jennifer Lorenze, Mercedes Salinas, Dave Sullivan, Richard Volk and Jane Ward. Illustrations: Dinah Bowman.

News items, photographs, and letters are welcome and may be submitted to the CCBNEP office, Natural Resources Center, Suite 3300, TAMU-CC, 6300 Ocean Drive, Corpus Christi, Texas 78412. The submission deadline for the next newsletter is May 10, 1998.

Printed on recycled paper.

This project has been funded in part by the United States Environmental Protection Agency (EPA) under assistance agreement #CE-996363-01 to the Texas Natural Resource Conservation Commission (TNRCC). The contents of this document do not necessarily represent the views of the EPA or the TNRCC. The mention of trade name or commercial products does not in any way constitute an endorsement or recommendation for use.



# Ingleside's Cove Park Demonstrates Biofilter for Treatment of Stormwater Runoff

Cove Park is the site of a remarkable demonstration project recently completed in Ingleside. The park is the site of a CCBNEP project to demonstrate practical applications of a biofilter for the treatment of stormwater.

Although the primary objective of the biofilter is to clean stormwater before it reaches the bay, the project does much more. Designed and constructed entirely by city staff, Cove Park demonstrates a viable community-based approach to several environmental issues including water pollution, municipal solid waste, dredge material disposal, public education, and park development.

The thoughtful design of the park also provides the community with the maximum return on their investment. In addition to a CCBNEP grant for the biofilter, Ingleside secured other funds to give the entire park area a facelift including a jogging trail, picnic benches, and historical markers.

## Biofilter Design

A biofilter is a vegetated field designed to slow runoff, allowing it to infiltrate into the ground. Then, through various processes, the pollutants contained in the runoff can be converted to plant biom-

ass or bound to the soil as inert chemicals.

Biofilter soil must be porous to allow water infiltration and contain enough organic material to support vigorous plant growth and microbial activity. However, two years ago, maintenance dredging in Ingleside Cove produced 3,000 cubic yards of dredged sediments which were placed in heaps where the biofilter now exists. The high salt and low organic content presented an obstacle to the biofilter designers.

At the same time, Ingleside was promoting a community compost program to reduce municipal waste. The program was successful — almost too successful. Ingleside produced organic material faster than the community could use it.

Ingleside's solution to these seemingly disparate projects was to bring them together. Over 5,000 cubic yards of compost was trucked to the site, mixed with the dredge material, and plowed into the existing soil. These soil amendments complemented each other — sediments provided structure for biofilter contouring, and the compost provided needed organics and porosity. The result is a rich soil, well suited for biofilter construction.

Reducing runoff velocity is another fundamental design element of a biofilter. Low velocity flow reduces erosion and allows water to infiltrate the biofilter. Prior to construction, rainfall was conveyed through the park at high velocity, forming deep gullies and channels, indicating erosion. The sediment-laden water was then discharged directly to the bay after a rain.

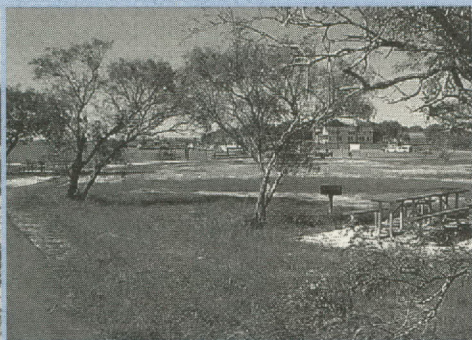
Ingleside constructed a weir to reduce water flow velocity. The weir is about 200 feet long and collects runoff at either end from the 150 acre watershed. Once runoff fills the weir, it flows evenly over the top, creating a low velocity sheet flow promoting absorption and infiltration. The weir also features a drainage plug to release water in low- and no- flow conditions.

The third element for a functional biofilter is vegetation. Since the design concept included a multi-use park, Sahara Bermuda grass was planted. The planting has been very successful with close to 100 percent coverage.

## Planting Seeds for Tomorrow

An education program was initiated as part of the CCBNEP project. It seeks to inform and educate the Ingleside community about polluted runoff and provide measures to reduce its impact. Classroom lesson plans were designed for three reading levels. Efforts are underway to combine these lesson plans with visits to the park for a 'classroom in the park' experience.

The project also includes a water sampling regime to measure the effectiveness of the biofilter. Data should be available by the summer. For more information, contact Ingleside City Manager, Marilyn Hall at 512/776-2517.



These photos provide an indication of the changes that have taken place at Cove Park. The photo at left shows the dredge materials and construction rubbish on-site prior to the project. The photo at right was taken shortly after the grass was planted.



# New Land Trust Coming to the Coastal Bend

## Coastal Bend Bays Foundation Initiates Action to Protect Habitat

Population growth in Texas is one of the most rapid in the country. New home construction and urban sprawl means losses of important ecological areas — especially coastal habitats. Besides the encroachment into these habitats, Carolyn Scheffer of the Texas Parks and Wildlife Department (TPWD) says, “A nagging concern for many Texas landowners is the uncertain long-term future of rural land.”

In the Coastal Bend, a new effort is underway to address these issues on a regional scale. Inspired by discussions during the development of the draft **Coastal Bend Bays Plan**, the Coastal Bend Bays Foundation (CBBF) has taken a lead in the development of a Coastal Bend Land Trust (CBLT).

According to TPWD, the general purpose of a land trust is to “manage purchased or donated land and easements for conservation purposes.” Presently, there are over 20 land trusts in Texas, each with its own mission; some work in specific geographic areas or concentrate on protecting certain natural features.

Various social and economic forces are gradually breaking many Texas family farms and ranches into ever-smaller fragments. Ownership costs often prevent landowners from keeping or bequeathing their land. And yet many have invested their lives and energy into land stewardship.

That’s where a land trust can help. The legal structure of a land trust provides for both long-term conservation and landowner interests. First, landowners that donate their land get immediate tax relief on the property. Secondly, landowners may direct the specific goals for which the land should be managed in perpetuity.

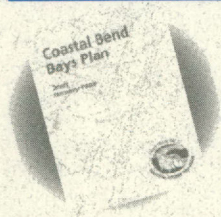
Dr. Jennifer Prouty is the CBBF President and Chair of the CBLT Committee. “Land trusts provide a cost efficient mechanism to achieve some of the long-term conservation goals in the draft **Coastal Bend Bays Plan**. And having it administered locally is important as well. It allows landowners and the trust organization to forge and maintain a personal involvement in land management.”

The CBLT primary mission will be to hold, preserve, conserve, restore and enhance ecosystems of the region. The goals are to:

- Ensure long-term protection of Coastal Bend habitats;
- Develop site-specific management plans, including compatible land uses, that can serve as models for other sites and landowners;
- Establish education programs regarding the importance of habitat conservation and potential partnership opportunities; and
- Assist in developing research programs that will increase the ability to assess habitats and restoration success.

Dr. Prouty says the CBLT will focus on habitats of ecological significance. “There are many important ecosystems in the Coastal Bend and we want to preserve a variety, including wetlands, riparian corridor (river bottom lands), upland woods, and others.” Those that will receive special attention will be lands that are in immediate likelihood of development or which require restoration efforts to return lost functions and values.”

## Bay Summit to Feature Presentation of the Coastal Bend Bays Plan



The draft **Coastal Bend Bays Plan** was printed and mailed to more than 7,000 coastal citizens for review and comment in early February. The Plan is a ‘framework for action’ to help guide resource management efforts well into the 21st century. Special presentations to various organizations and several Town Hall meetings throughout the region were conducted to expand public input on the Bays Plan before close of the official public comment period on March 31st. But there is still one last

chance for interested citizens to provide input before the Management Conference goes to work to finalize the Plan.

On Monday April 27th, the public is invited to attend the biennial Bay Summit which will feature a presentation of proposed actions and updates on several recently completed scientific investigations of the bay system. On hand will be those who have been most involved in Plan development to answer questions and receive additional comment. The day will

feature more than 20 presentations from scientists, resource managers, and key stakeholders who will describe from their perspective why the proposed actions deserve public attention.

The Bay Summit is open to the public free of charge and will take place at the Omni Marina Hotel in Corpus Christi beginning at 8:00 A.M. on the 27th. To register or for more information, call the CCBNEP Program office at 512/980-3420.



# Neighborhood NEWS

## Community Project to Improve Water Quality of Urban Runoff at Falcon Park and Oso Creek Parkway

As the human population grows in the Coastal Bend, so will the need for additional residential development.

The CCBNEP and the City of Corpus Christi have joined forces to address nonpoint source (NPS) pollution from a south side residential neighborhood while enhancing the area's landscape. The project will take place at Falcon Park and Oso Parkway. Four principal concerns will be addressed by the project including:

- Soil erosion along a drainage basin;
- Stormwater quality;
- Safe public access to natural areas; and
- NPS public education and outreach.

The Kika De La Garza Plant Materials Center in Kingsville will design and plant

the appropriate native wetland vegetation at Falcon Park. The new landscape will be designed to prevent further erosion and act as a biofilter to remove pollutants from residential stormwater runoff. An elevated boardwalk is part of the proposed project. It will span the biofilter and include interpretive signage describing the types of vegetation present and the biofilter's function.

The Oso Parkway site will include signage describing the unique history and archaeological significance of the Oso Creek area. Trails at the site will be constructed of different grades of mulch provided from the City's landfill.

Water quality parameters will be measured by the City's urban stormwater monitoring team. Water quality monitoring is scheduled to begin in April, five months prior to the vegetative planting.

The early data will be used to compare water quality changes throughout the life of the project. This will allow analysis of comparative samples and quantify the effectiveness of the biofilter at removing pollutants from the runoff.

For more information, contact Sandra Alvarado at 512/980-3420.



Falcon Park near The Lakes residential area will be the site of a new demonstration biofilter for the treatment of stormwater runoff.

*'Septic' from page 2*

erations, design, and regulations. Four coastal counties were selected for the study — Refugio, Aransas, San Patricio, and Nueces.

Some of these treatment systems are failing. The available data indicate that the number of failing systems is significant — approximately 1,400 systems in just three of the counties studied.

The study identified several factors, which result in failed systems. They include:

- Flooding and high groundwater tables;
- Construction in unsuitable soils;
- Improperly designed systems;
- Inadequate maintenance;
- Inadequate lot size; and
- Improperly installed systems.

Identifying problems is only the first step in a series to address failing OSSF systems. As a secondary objective, report authors worked with county health officials, regulatory authorities, and OSSF contractors to collect input on OSSF problems and possible solutions. Problems identified in the report include:

- Outdated subdivision ordinances and platting requirements;
- Achieving compliance with homeowners;
- Local government staff & budget constraints; and
- Lack of judicial support regarding OSSF infractions.

Based on historical trends, the number of septic systems in the Coastal Bend is likely to increase. This OSSF report provides much of the background information needed to monitor regional water quality impacts that may occur due to failing systems. For more information, contact the CCBNEP Program office at 512/980-3420.



## Calendar of Upcoming Events

- April 17 Red Tide Workshop - UTMSI
- April 22 Earth Day
- April 27 Bay Summit - Omni Marina Hotel
- April 28 All-Conference Workshop - Omni Marina Hotel
- May 7 Science and Technical Advisory Committee Meeting
- May 7 Program Implementation Committee Meeting
- May 14 Management Committee Meeting
- June 4 Scientific and Technical Advisory Committee Meeting
- June 11 Management Committee Meeting

For More Information Call: 512/980-3420

# Education Station

## Teaching Environmental Science Courses Offered!

Two special graduate courses will be offered this summer at Texas A&M University-Corpus Christi (TAMU-CC) for teachers of all grade levels. The CCBNEP and the Port Industries of Corpus Christi have joined with TAMU-CC to offer these courses at no cost to teachers.

TES I targets elementary teachers and will run from June 3 - 16 and will focus on general environmental issues such as air, water, and waste. Two days will be dedicated to estuarine ecology.

TES II targets middle and high school teachers and will run from June 17-30. The entire course will focus on the bays, estuaries, and water quality.

Teachers will receive 45 hours of TEEAC credit and three hours of graduate credit at TAMU-CC.

For more information, contact Dr. Malcolm Butler at 512/994-6032 or e-mail [mbutler@falcon.tamucc.edu](mailto:mbutler@falcon.tamucc.edu).



*Printed on Recycled Paper*

CCBNEP  
Natural Resources Center, Suite 3300  
TAMU-CC  
6300 Ocean Drive  
Corpus Christi, TX 78412

**BULK RATE  
U.S. POSTAGE  
PAID  
AUSTIN, TX  
PERMIT 1967**