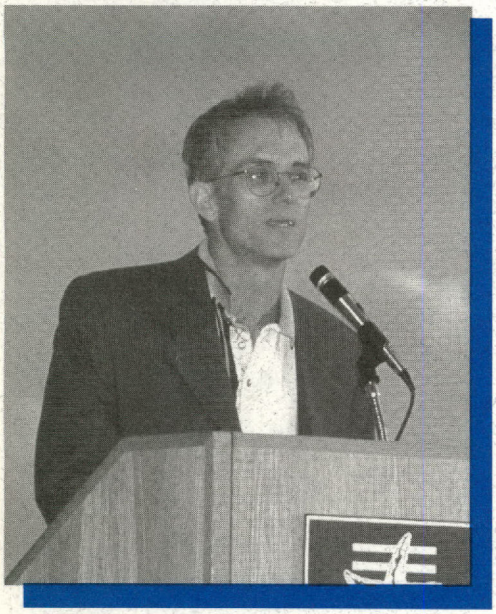
Around THE Bend

VOL. 5, NO. 1 - WINTER 1999

NEWSLETTER OF THE COASTAL BEND BAYS AND ESTUARIES PROGRAM - SOUTH TEXAS



Richard Volk, CBBEP Program Director, introduces guest speakers at Endorsement Ceremony.

What's Inside

Celebration Marks Endorsement of *Coastal Bend Bays Plan*

Over 150 elected officials, environmental advocates, business and community leaders, gathered at the Texas State Aquarium October 1st to applaud the endorsement of the ***Coastal Bend Bays Plan***. The evening's festivities were marked by the announcement that the ***Bays Plan*** had been endorsed by Governor George W. Bush and was enroute to the U.S. Environmental Protection Agency (EPA) Administrator for review. Approval by EPA makes available additional funds for implementation under the Clean Water Act.

Many of those in attendance were directly involved in bringing the Corpus Christi Bay National Estuary Program (CCBNEP) to the Coastal Bend - an effort which began back in 1992. The CCBNEP was officially established in late 1993 and 35,000 volunteer hours later, the ***Coastal Bend Bays Plan*** is complete. Representatives of more than 100 organizations worked tirelessly to complete the ***Bays Plan*** - the only one of 28 Programs nationwide to do so in four years.

"The ***Bays Plan*** gives us a way to manage the most valuable resource in our area, by the people in our area. In other words, it is not imposed on us by people from Austin or Washington," says John Barrett, a row-crop producer and representative of the agricultural community. "It is a bottom-up program where we can do what's right both for the environment and for sustainable economic growth in our area."

"We have worked together to develop a plan for protecting this resource so we will all - our children, and our grandchildren - have the opportunity to enjoy it."

John Baker, TNRCC Commissioner

Barrett's comments echo one of the central tenets of the ***Bays Plan***, the interrelationship between regional economic and environmental health. This is made especially poignant when considering that bay related activities in the Coastal Bend provided over $4.1 billion in output (sales) to the regional economy. Many of those activities would not be possible if it were not for the productivity of the estuaries.

see 'Endorsement' next page

'Endorsement' from page 1

The ***Bays Plan*** reflects community interests and is considered a victory for Coastal Bend resource protection. "When you get this many people and this amount of voluntary man-hours from such a committed and diverse group, you 're going to end up with something of common sense," says Barrett.

John Baker, Commissioner of the Texas Natural Resource Conservation Commission, was on hand to congratulate the people of the Coastal Bend for their pursuit of a workable plan. "As I have watched this process develop and evolve I have seen the genuine effort of everyone at the table in defining the problems while recognizing the value of this beautiful and natural resource. We have worked together to develop a plan for protecting this resource so we will all - our children, and our grandchildren - have the opportunity to enjoy it."

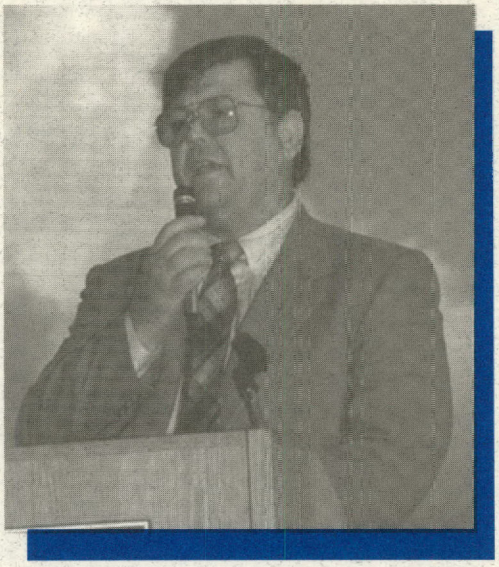
Commissioner Baker has been involved with the ***Bays Plan*** from the outset. His leadership on the Policy Committee has been instrumental in completing the plan. "This program exemplifies what Governor Bush has often said - local people and local government need to take responsibility for their destiny - and that is what you have done."

Taking part in the endorsement celebration was Corpus Christi Mayor Loyd Neal. "This is a great day in Corpus Christi. We have a program that is specifically interested in the ecological protection and economic development of the bays and estuaries. This also brings together government interaction at all levels with the private sector to have a planned, orderly approach to the process."

As we approach the twenty-first century, the increasing population and expanding residential, commercial, and industrial developments will be a significant stress on the bay system. Current projections for the Coastal Bend indicate that:

- The population will double by 2050;
- 50,000 new single-family homes are expected in the metropolitan area by 2030;
- Water demand is expected to outstrip supply by 2040.

Given the need to plan for these significant changes, and the ever-increasing number of people visiting the region, implementation of the ***Bays Plan*** is an important step towards achieving a balance between the needs of the environment and those of the community.



TNRCC Commissioner, John Baker, praising completion of the Coastal Bend Bays Plan at Endorsement Ceremony

"This is a great day in Corpus Christi. We have a program that is specifically interested in the ecological protection and economic development of the bays and estuaries."

Corpus Christi Mayor, Loyd Neal

Program Office To Move

Change Offers Integration in Broader Community

During the first quarter of 1999, the Coastal Bend Bays & Estuaries Program (CBBEP) office will move from the campus of Texas A&M University-Corpus Christi to the Port of Corpus Christi Authority office complex on North Shoreline Boulevard. The new space is being provided as an in-kind contribution from the Port Authority, a local stakeholder in the CBBEP.

The reason for the change is manyfold. First, as the CBBEP begins implementation Program leaders believe the community would be better served and the Program more effective through daily interactions with business and industrial interests.

"Members of the Program's Policy Committee decided that the office move to

see 'Move' on page 6

Around the Bend is produced quarterly by the Coastal Bend Bays & Estuaries Program with funding from the U.S. Environmental Protection Agency and the Texas Natural Resource Conservation Commission. For more information about the Program or to request a subscription to Around the Bend, contact the CBBEP office at 512/980-3420.

Articles are provided through contract with the Center for Coastal Studies, TAMU-CC. Contributors to this issue include Quenton Dokken, Ph.D., Susan Childs and Doug Baker.

News items, photographs, and letters are welcome and may be submitted to the CBBEP office, Natural Resources Center, Suite 3300, TAMU-CC, 6300 Ocean Drive, Corpus Christi, Texas 78412. The submission deadline for the next issue is February 7, 1999.

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Allison Wastewater Treatment Plant Effluent Diversion Demonstration Project

Providing Freshwater Inflows to the Nueces River Delta during Periods of Drought

In the 1990s, perhaps the most contentious environmental issue in the Coastal Bend has been that of freshwater allocations. Prior to human intervention, freshwater allocations were determined by natural controlling factors such as climate, precipitation, and topography. Over eons of time, the plants and animals of the region adapted to this continual change of conditions. Population balances were struck and maintained throughout the centuries. Enter stage right - the industrialized human with ever increasing freshwater needs and abilities to override nature's balancing mechanisms.

Divergent opinions regarding how freshwater should be allocated were inevitable. The demands for water are as diverse as the populace and economics of the Coastal Bend: industrial interests require freshwater for product processing; community developers need freshwater for urban growth; and agricultural interests need water to support crops and livestock production.

Equally important are the environmental demands that support multimillion dollar industries, including tourism, and commercial and sport fisheries. Additional stakeholders include lakeside residents whose interests are linked to quality of life and property value issues. The challenge has been to develop strategies that address the needs of all interests, including nature itself.

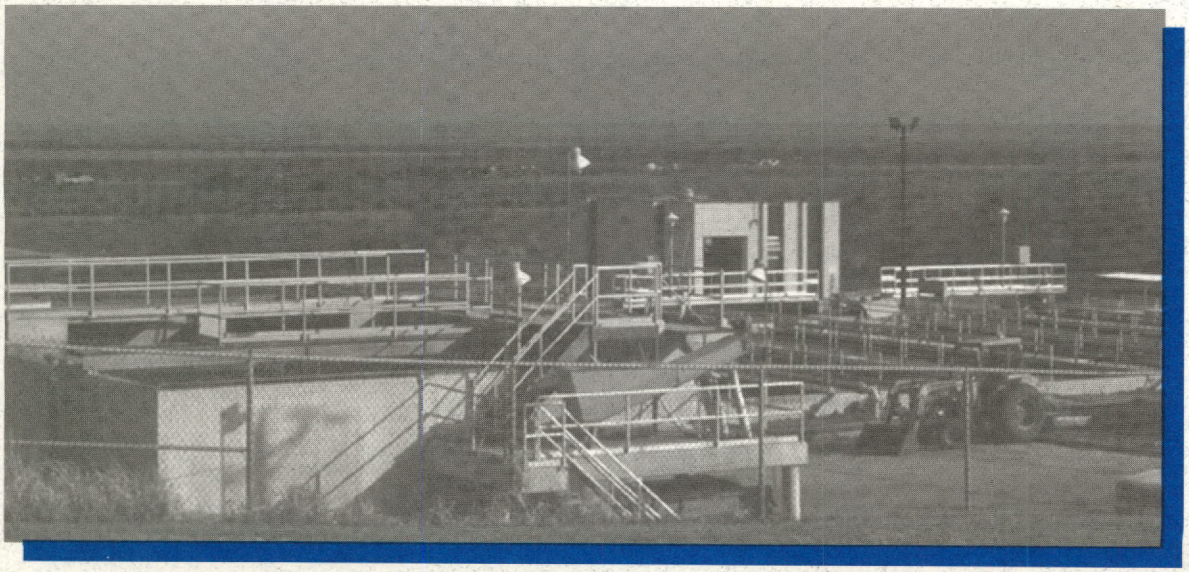
The Nueces River is the main freshwater source for Nueces and Corpus Christi Bays. But like many river courses, the Nueces has been controlled, preventing many important functions in the river delta from being performed. Upstream dams, and flood control measures near the delta combine to adversely affect the productivity of the bay system. Annual net primary (plant) productivity has been estimated to be only 60 to 70 percent of that measured in two nearby river deltas, primarily the result of a lack of nutrient and freshwater input. The Nueces River no longer inundates its delta with beneficial freshwater, nutrients, and sediments except during floods.

Regulations and Allocations

The City of Corpus Christi is the principal operator, and a co-owner with the Nueces River Authority and the City of Three Rivers, of the Lake Corpus Christi/ Choke Canyon Reservoir System. Currently, the Reservoir System is the primary water supply for the City of Corpus Christi and the surrounding 12 county area.

As part of its water rights permit for Choke Canyon Reservoir, the City operates the Reservoir System to provide not less that 151,000 acre-feet per year to the receiving estuaries. After the first Reservoir System operating plan was issued by the Texas Water Commission in 1990, the City conducted a Nueces Estuary Regional Wastewater Planning Study to assess the benefits of *targeting* wastewater return flows in the Nueces Delta to substitute, in part, for releases or pass-throughs of inflows from the reservoir system.

see 'Allison WWTP' page 6



The Allison Wastewater Treatment Plant (above) and the adjacent Nueces River Delta are part of an innovative demonstration project to document the potential to enhance primary productivity and marsh habitat in estuarine areas through the introduction of treated wastewater into "fresh water limited areas".

CBBEP Projects for 1999

Partnerships and Cooperation Earmark Early Implementation Activities

Having completed the ***Bays Plan*** in record time, the Coastal Bend Bays & Estuaries Program (CBBEP) is poised to move into implementation with renewed vigor. In fact, implementation is already underway. Capitalizing on momentum built during the planning phase, several FY 99 projects have been initiated including the regional monitoring strategy, an information clearinghouse, and development of a beneficial uses group, which focuses on placement of dredged material.

Regional Monitoring Strategy

The Regional Monitoring Strategy (RMS) provides the means to evaluate the effectiveness of the ***Bays Plan*** and to assess over time the overall health of the bay ecosystem. The RMS also attempts to coordinate and build upon existing monitoring programs. In 1999, the CBBEP will initiate the RMS with the intent of:

1) Describing causal relationships between human activities and environmental conditions and trends.
2) Creating a database to track the progress and effectiveness of the ***Bays Plan***.
3) Increasing understanding of the coastal ecosystem for the purpose of periodically updating the ***Bays Plan***.
4) Continuing descriptive efforts of trends in water quality, natural resources, and uses of the estuaries.

In the coming year, significant efforts will be expended to standardize monitoring protocols among the various participating groups, including business and industry, resource management agencies, and academic institutions. The CBBEP will function as a facilitator to bring together these vested interest groups through workshops and informal meetings.

The CBBEP will also initiate actions to address data gaps in the habitat and water quality monitoring database, the end result being an evolving comprehensive picture of the condition of the Coastal Bend bay resources. Efforts to describe the ongoing status of the bays' health and productivity will also be facilitated as monitoring agencies improve data distribution through coordinated use of the Internet via the Information Clearinghouse (next page).

A technical *ad hoc* committee will be formed to provide direction on the details of the various components described, and to assist in determining the need and scope of work for contractor assistance to implement a component the RMS.

1952

1994

Implementation of the Regional Monitoring Strategy includes tracking long-term changes in Coastal Bend habitats. These aerial photos show changes to important tidal flat and marsh habitats on Live Oak Peninsula occurring between 1952 and 1994.

Additional 1999 Goals

In addition to the previously highlighted goals to be undertaken and completed during FY 99, other project activities have been selected for their contribution towards implementation of the ***Bays Plan***. They are as follows:

- Continuation and expansion of the atmospheric deposition study
- Riparian corridor assessment and habitat protection
- Assistance to Coastal Bend Land Trust Fund
- Coordination of regional shoreline management
- Regional recreational water quality assessment
- Small-city stormwater planning and technical assistance
- ***Bays Plan*** Implementation Workshop
- Propeller scarring education and demonstration project
- On-site sewage facility assistance to local governments
- Aransas Causeway access master plan
- Bay Stewardship & Celebration Day
- Environmental excellence recognition program
- "Friend of the Bay" stewardship program
- Teaching Environmental Science workshop

Information Clearinghouse

From its inception, the CBBEP has explored options for data and information distribution. Beginning this year, the CBBEP is responding to the often-cited need for a publicly accessible database which focuses on Coastal Bend bay related resources. Meetings began in August to develop the CBBEP Information Clearinghouse.

As interest in the Internet continues to escalate, a major component of this effort includes developing an online resource, including virtual library, newsgroup, map server and searchable database.

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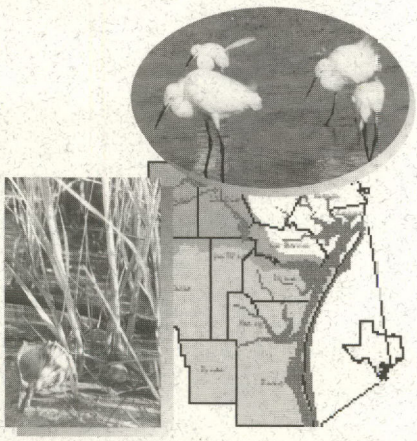
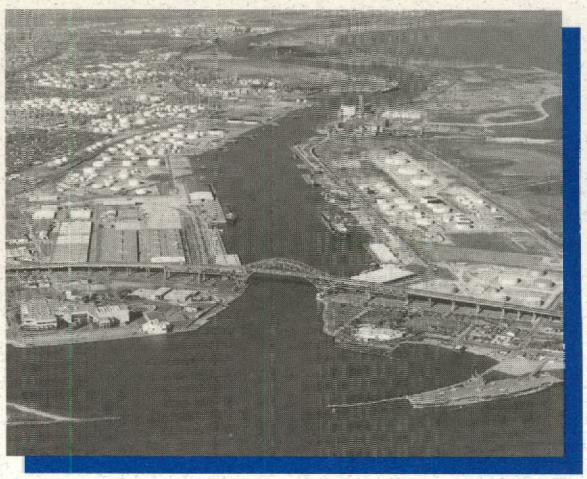


The CBBEP Web Site will be enhanced to include a searchable database and map server.

An integral part of the Information Clearinghouse is providing an information sharing framework for other CBBEP initiatives including public education and outreach, and the Regional Monitoring Strategy. The core of the Information Clearinghouse data consists of CBBEP reports, newsletters, fact sheets, and GIS coverages. However, the value of the Information Clearinghouse will be realized as regional partnerships are developed over the coming years.

Beneficial Uses Group

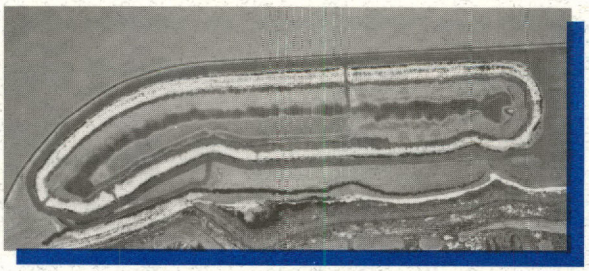
After the dredging of the Gulf Intracoastal Waterway (GIWW) and deepening of Aransas Pass and Corpus Christi Ship Channel, the Coastal Bend became a major maritime commerce center. Each year the role of these waterways in the socio-economics of the Coastal Bend and the nation increases - the Port of Corpus Christi is now the sixth largest port in the nation.



The Port of Corpus Christi is the sixth largest port in the nation. The Beneficial Uses Group will bring science and economics together to optimize placement of dredged material.

Maintaining these commercial waterways requires periodic dredging which produces thousands of tons of "dredged material." Subsequently, the disposal of dredged material remains problematic. Historically, dredged material has been deposited as "spoil islands" along the waterways. However, in today's climate of environmental protection, past practices are coming under scrutiny.

According to many experts, viable alternatives are available, albeit not without additional costs. However, environmental concerns over placement of dredged materials may be overcome with proper planning. In fact many experts consider dredged material an asset that can be used for a wide array of beneficial uses.



Aransas Wildlife Refuge has been the site of beneficial use projects to develop Whooping Crane habitat.

Kim Withers, Research Scientist at the Center for Coastal Studies at Texas A&M University-Corpus Christi has conducted research on beneficial use sites at the Aransas National Wildlife Refuge. "The term 'beneficial use' refers to utilizing dredged material to create habitat usually in the form of an island or marsh, or to augment an existing habitat, usually emergent wetlands," says Withers. In efforts to offset habitat loss, creation of coastal wetlands using dredged material has been attempted in recent years. "Studies to evaluate habitat developed from dredged material for endangered Whooping Cranes have shown positive results," says Withers.

The CBBEP will endeavor to establish a group of technical experts to identify site-specific opportunities for beneficial uses of dredged material. The intended outcome is a long-term plan for the management of dredged material in an environmentally sound and beneficial manner. Public and stakeholder input will be sought through workshops in an effort to reach consensus on the most appropriate long-term dredge management plan. Dredging and disposal of dredge material are challenges we will face as long as the shipping channels remain operative.

'Allison WWTP' from page 3

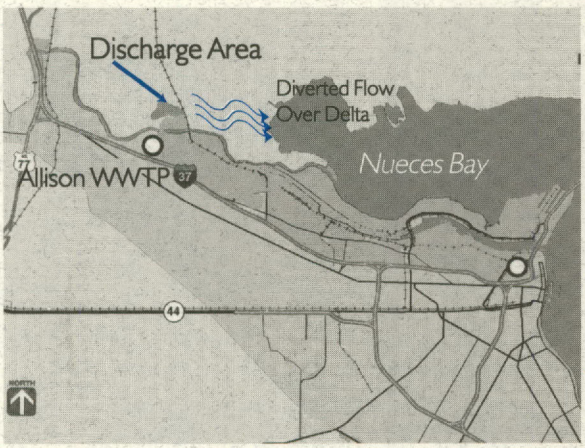
Phase II of the Wastewater Study concluded that targeting the return flows would have a beneficial impact on the productivity of the Nueces Estuary. Based on the findings in the Wastewater Study, two recommendations were made:

1. Establish a demonstration project to show feasibility and to provide scientific evidence for the degree of productivity enhancements achievable by freshwater and wastewater diversions to the Nueces Delta; and
2. Establish a scientific monitoring program for routine collection of pertinent data for the continued operation and improvement of scientific knowledge in the Nueces Estuary.

Diversion Project Initiated

In 1996, the City of Corpus Christi proposed a project to demonstrate and document the potential to enhance primary productivity and marsh habitat in estuarine areas through the introduction of treated municipal wastewater discharges into "freshwater limited wetland areas".

Baseline monitoring was initiated prior to the construction of the demonstration project to measure the changes. Construction was completed in September 1997, and a permit was issued by the En-



Up to two-million gallons per day of wastewater is being diverted to the Nueces Delta where changes in biological productivity are monitored.

Up to 2 million gallons per day of treated wastewater are being diverted directly to the Nueces River Delta where it flows through the delta into Nueces Bay.

The associated monitoring program will document biological changes in estuarine faunal populations that may occur as a direct result of the diversion from the Allison Wastewater Treatment Plant into the South Lake region of the Nueces Delta. The existing Texas Natural Resource Conservation Commission wastewater permit requires collection of ecological monitoring data, including changes to primary and higher level productivity, bottom invertebrates, larval/juvenile fish and shellfish, and usage by water birds at the demonstration project and nearby wetlands. Collaborative monitoring will be conducted by the City of Corpus Christi, the University of Texas Marine Science Institute, the Conrad Blucher Institute for Surveying and Science, the Center for Coastal Studies at Texas A&M University-Corpus Christi, and other local and state institutions.

The ***Bays Plan*** calls for continued and expanded efforts to conserve the region's valuable freshwater supply and every effort will be made to increase the public's understanding of the issues, plans, and programs to meet both human and environmental needs for freshwater. Should this demonstration project prove successful, similar wetland enhancements could be undertaken in other areas of the Coastal Bend.

The Allison Wastewater Diversion Project demonstrates the ability of the community and local leaders to find creative solutions to complex challenges. It shows a regional commitment of Coastal Bend citizens to step into the 21st century in an environmentally and economically sound manner.

'Move' from page 2

the Port location will facilitate program staff access to key stakeholders, especially local government and port industry stakeholders. By virtue of the (new) Port location, program staff in turn will be slightly more centralized within the overall project area which should facilitate access to project sites north of Corpus Christi Bay," says Program Director, Richard Volk.

Bernard Paulson, CBBEP Policy Committee member and Port Commission Secretary, feels the time is right for the move. "The University setting was worthwhile during the planning phase. However, the time has come to take the program to the next level (implementation) which requires more input from local government, community leaders, business and industry. This can more readily be accomplished at the Port."

During implementation, Program staff and community leaders must step-up the search for additional or 'extra-programmatic' funding to augment the federal and state contributions. Considerable staff time will be devoted to working closely with local governments to identify both site-specific projects and funding opportunities for partnership.

New CBBEP Reports

- Characterization of Anthropogenic & Natural Disturbance on Vegetated and Unvegetated Bay Bottom Habitats;
- Current Status and Trends of Selected Estuarine and Coastal Habitats;
- Analysis of Point Source Discharges (Including Oil Field Brine Discharges);
- Sediment Quality Assessment of Storm Water Outfalls and Other Sites of Concern;
- Evaluation of Bycatch Reduction Devices in Aransas Bay During the 1997 Spring and Fall Commercial Bay Shrimp Season.

Call the Program office at 512/980-3420 for more information.

News

Flour Bluff 'Oceans' Class Offers Hands-on Experience

Flour Bluff Schools, located on Waldron Road, are just minutes away from the Laguna Madre, Corpus Christi Bay, the Gulf Intracoastal Waterway, and North Padre Island. Salt laden air and pungent sea aromas permeate the atmosphere of this growing urban area that originated as a fishing village on the shores of the Laguna Madre. It is not surprising that this school system takes an active role in educating students on the importance of the marine ecosystems that are a part of their daily lives and historical heritage.

Flour Bluff students are encouraged to become involved in marine studies. Students from middle school to high school have access to a diverse curriculum that emphasizes the various marine ecosystems of the Coastal Bend.

Cliff Strain has been with the Flour Bluff school district for nine years developing and teaching a marine science class called "Oceans", that helps middle school kids understand and appreciate the water-based environments throughout the area. He has approximately 20 kids per semester. "This is an elective for the kids, so I know from past semesters when they sign up that they are, for the most part, really excited about being in a marine science class," says Strain. "Most of these kids have two science classes, so they are pretty serious about the Oceans curriculum." During the 1998 Spring semester, the "Oceans" students created a wetland in back of their portable classroom building.

"This is an elective for the kids, so I know from past semesters when they sign up that they are, for the most part, really excited about being in a marine science class."

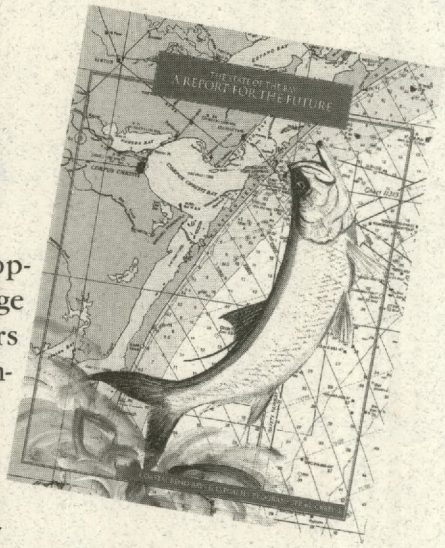
Oceans Program Teacher, Cliff Strain.

Cliff Strain (seated) is flanked by three Flour Bluff middle school students. The students are enrolled in the marine science, 'Oceans' curriculum. Plants were donated by the Kika de la Garza Plant Materials Center, Kingsville.

"The idea for the wetland evolved from my participation in a workshop entitled 'Teaching Environmental Science' (TES), sponsored by Texas A&M University-Corpus Christi and the Coastal Bend Bays & Estuary Program." Strain also gives credit to a news spot in the Fall '97 issue of *Around the Bend*, which highlighted a demonstration project in Refugio where a wetland was created. The sixth graders planted 12 species of wetland plants in May 1998 receiving assistance from John Lloyd-Reilley of the Kika de la Garza Plant Materials Center located in Kingsville. Other contributors to the construction of the site were Texas Parks and Wildlife Department's Aquaculture Facility, Walmart, the Flour Bluff School District, and the Education Service Center.

Students have the chance to get first hand experience in the creation and development of a diverse and threatened ecosystem such as a wetland. "It's fun to learn about the creatures that live in wetlands, and Mr. Strain is a very good teacher" says Chasity Longbine, sixth grade student who enjoys working in the small site during the Oceans class. "When the students finish their classroom assignment, they get to go outside and work in the wetland as a reward." The CBBEP plans to work, through continued cosponsorship of the TES course, to replicate this type of school involvement throughout the project area.

State of the Bay: A Report for the Future *Now Available*



The State of the Bay Report is a culmination of more than four years of scientific investigation into the overall health and environmental issues affecting Coastal Bend Estuaries.

But it is more than that.

The State of the Bay Report is a snapshot of the regional economic and environmental conditions on the eve of the twenty-first century. It begins with a brief summary of environmental issues, synthesized from over 30 technical reports. The report then launches into a description of the region's colorful history and economic development. This jaunt back in time begins with a description of the environment, native peoples, and colonization. Following that, the report provides a narrative of early settlements, trade, and shipping, leading up to present day. The chapter closes with a summary of the economic developments, setting the stage for remaining chapters which focus on environmental conditions.

Rich artwork, graphics, and tables seduce readers into the heart of the report which covers the pivotal role Coastal Bend estuaries play in our lives. Each of the region's major environmental issues are covered including habitat, living resources, freshwater resources, circulation, water quality, and public health.

Copies of the State of the Bay Report may be requested by calling the Program office at 512/980-3420.

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