AROUND THE BEND

News of the
Coastal Bend's Bays and Estuaries

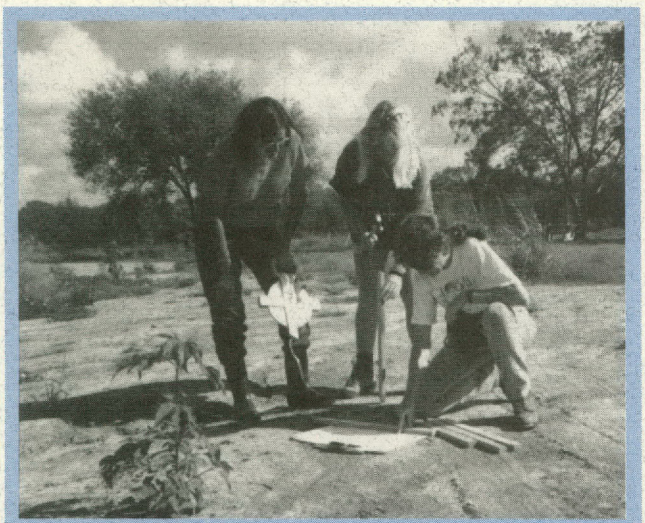
Vol. 3, No.4 - Fall 1997

Wetland Demonstration Project in Refugio Targets Nonpoint Source Pollution

Small Community Demonstrates Big Ideas

Synergy: Where the whole is greater than the sum of the parts. That's a good description of what's happening in Refugio. Community leaders, civic groups, and volunteers have joined together to reduce pollution and improve the City of Refugio's Lions/Shelly Park.

Improvements at the park include a reflection pond, enhanced wetlands, hiking trails, sport fields, playground and RV Park. But what makes this park unique, is that it also improves water quality. The park's redesign includes many enhancements to passively treat stormwater. The project is funded in part by the CCBNEP to demonstrate how communities can integrate cutting-edge design elements into public projects at little cost.



Kay Jenkins (right) discusses plans for planting native wetland plants with Elizabeth Smith (left) and Susan Cox (center).

The Lions/Shelly Park straddles Little Creek, a tributary of the Mission River, which drains into Copano Bay. Little Creek lies entirely within the city limits of Refugio, and encompasses a 1,400-acre watershed - about 60 percent is urban and the remaining is native range.

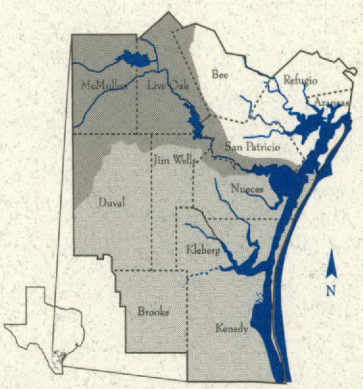
The park is designed to reduce *nonpoint source* pollution from the surrounding urban areas. This type of diffuse pollution occurs after a rain, when the water running along the surface carries pollutants deposited on the ground. In urban areas, pollution originates from streets, residential lawns, construction sites, commercial, and industrial areas.

Nonpoint source pollution is a concern throughout the U.S. It is one of the leading causes of water quality degradation in rivers, lakes, and estuaries. Typical pollutants include suspended solids, detergents, heavy metals, fertilizer, pesticides, oil, and grease.

The park has two elements designed to reduce nonpoint source pollution. The first is an enhanced wetland where native vegetation has been planted along the creek bank. Kay Jenkins, a gradu-

'Wetland Project' next page

ON THE INSIDE



Corpus Christi Bay National Estuary Program Project Area

'Wetland Project' from page 1

Volunteers play a critical role in Refugio's Demonstration Project. Susanne Dilworth (above) carefully handles plants in preparation for the wetland planting.

ate research assistant for the Center for Coastal Studies, TAMU-CC is working on the project's landscape. Her innovative design will address nonpoint source water pollution in several ways.

"Plants along the creek bank stabilize the soil and remove pollutants," says Jenkins. "The plant roots anchor soil sediment, reducing erosion during floods. The submerged plant stems also reduce the velocity of water in the creek, thereby trapping suspended particles along the creek bank." Landscaping techniques such as these are not new. But only within the last 20 years have planners realized the positive effect it has on water quality.

Wetland plants placed at the water's edge also act like sponges - absorbing water and nutrients. Nutrients - in excess - can lead to algal blooms downstream, which deplete oxygen in the water and may lead to fish kills. Nutrient loading is also linked to red tides, which pose a public health hazard.

The wetland planting was completed in June. Plants were provided through a donation from the Natural Resources Conservation Service, Kika de la Garza Plant Materials Center in Kingsville.

The second park element designed to clean the water is the creation of a reflecting pond. On the surface, these still waters provide a calming backdrop for park visitors. But the five-foot deep pond was also designed to remove pollutants from stormwater runoff.

Pollutants in runoff are attached to small particles suspended by rapidly moving water. They remain suspended until the water velocity is slow enough for them to settle to the bottom. The park pond was designed to retain stormwater runoff long enough to allow pollutants to settle to the pond bottom.

Over 200 plants - placed individually - were donated by the Kika de la Garza Plant Materials Center at Kingsville.

The City of Refugio is proud of their new park. Refugio Mayor, Jim Sheive says the economic and social impacts are already being seen. "The Park is drawing visitors from across the nation who want to take advantage of our birding trails and park facilities." And with that comes greater economic opportunities for the community.

Elizabeth Smith from the Center for Coastal Studies is working with Refugio to disseminate the lessons learned from this project. "We are going to develop and distribute educational materials describing the project, nonpoint source pollution, and the value of wetlands in an urban landscape," says Smith.

Students, teachers, elected officials, and community volunteers are just part of the 'whole' story in Refugio. But everyone involved agrees, the sum of their energies is greater than their individual efforts.

For more information contact Sandra Alvarado at the CCBNEP office - 512/980-3420.

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, Van Fischer, Elizabeth Smith, Dawn Volk, and Richard Volk. Illustrations: George Ward and 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 November 10, 1997.

Printed on recycled paper.

CCBNEP-100/97-4

Editor's note: The last issue omitted credit for seagrass illustrations provided courtesy of Texas A&M University, Sea Grant College Program. Our apologies.

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.

Water Quality Impacts from Atmospheric Pollutants Investigated

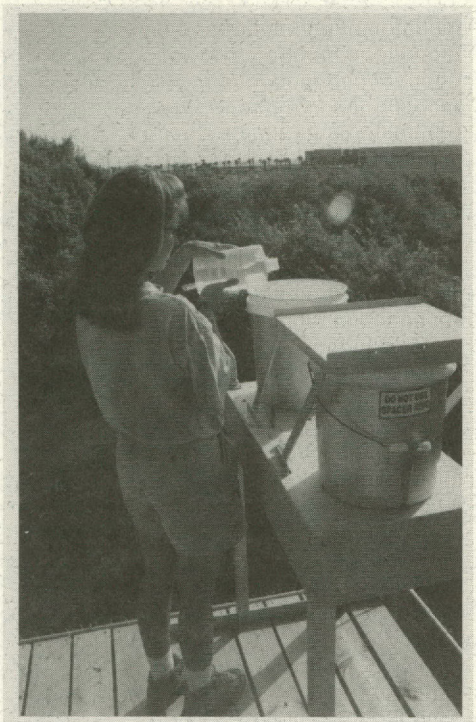
Atmospheric deposition has been identified nationwide over the past two decades as a significant component of nutrient and pollutant loading to surface waters. Data collected in Chesapeake Bay indicate that 27 percent of the total nitrogen load is attributed to wet and dry atmospheric deposition.

Emissions from cars, lawn mowers, and petrochemical plants all contribute to reduced air quality and have the potential to affect water quality. The Coastal Bend population is expected to double over the next 50 years, and bring with it increased emissions that could dramatically impact air and water quality.

But how much atmospheric deposition presently occurs in the Coastal Bend is unknown. So this year, the CCBNEP is coordinating a study with Texas A&M University Geochemical and Environmental Research Group to help answer that question.

Data collected will be useful for correlating air and water quality. Preliminary results are expected in early 1998.

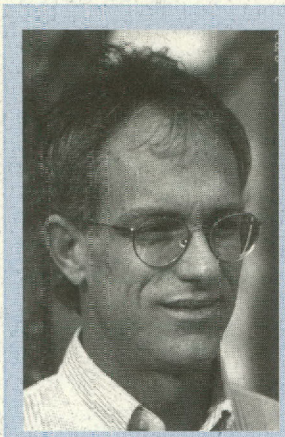
For more information contact Van Fischer at the CCBNEP office, 512/980-3420.



Two sample stations are positioned in the Corpus Christi area. The station above is on the TAMU-CC campus.

Two sampling stations have been installed close to Corpus Christi, Oso, and Nueces bays. One site is located on the Texas A&M University-Corpus Christi, campus and the other is located near White's Point on the northern side of Nueces Bay. The data stations will collect both wet-fall and dry-fall samples to be analyzed for constituents such as nitrogen, phosphorous, trace metals, pesticides, and other toxins.

Wet and dry samples are collected every week. Casandra Carrigan (above) from TAMU-CC is preparing a sample for transportation to the lab.



Richard Volk

Program Director's Report

The *Coastal Bend Bays Plan* takes shape!!!

The development of the ***Coastal Bend Bays Plan*** remains on-schedule for public release in January 1998. A second draft of the Plan was completed and distributed in mid-July to Management Conference members for their review and continued input. During the past six months, task force and committee members have worked hard to develop the Plan, which currently contains 89 actions grouped under 14 'priority issues' for bay resource management.

As this newsletter goes to press, members of the Local Governments and Citizens advisory committees are preparing to host and assist with a series of "stakeholder meetings and workshops." Three workshops – for stakeholders in "industry," "tourism/recreation," and "local government" – are set for late September. Meanwhile, briefings are being scheduled for city councils, commissioner courts, staff of local governments, and interested organizations in the six coastal counties of the project area.

Readers are encouraged to call the Program office at 512/980-3420 if you know of an organization that would like to hear a presentation on the region's bays and estuaries, and what the CCBNEP is doing to help ensure a bright future for these invaluable resources.

Scientists Discuss Water and Sediment Quality

Coastal Bend bays and estuaries are in a state of general good health. That's the good news. The bad news is, the system is stressed and continued health of the bays will require close vigilance.

That is according to scientists which met July 15 – 16, at the Water and Sediment Quality Technical Meeting, hosted by the CCBNEP.

Some of the state's top researchers met to summarize scientific studies during the two-day meeting in Corpus Christi. Many of those in attendance have been directly involved in assisting the CCBNEP to characterize the health of Coastal Bend bays and estuaries.

Researchers described factors that led to their conclusions. The Corpus Christi Bay system can be thought of as several large compartments (e.g., Nueces Bay, Aransas Bay, etc.) connected by narrow inlets (e.g., Nueces Pass, Aransas Pass). While each compartment is mixed by wind and waves, the exchange between the compartments is relatively weak. Of course, the most important exchange is between the bay and the Gulf of Mexico. A measure of this limited exchange, is the freshwater replacement time (or "residence time"), which averages about four years. One implication of this poor exchange between compartments means that the effects of waste discharges can be magnified.

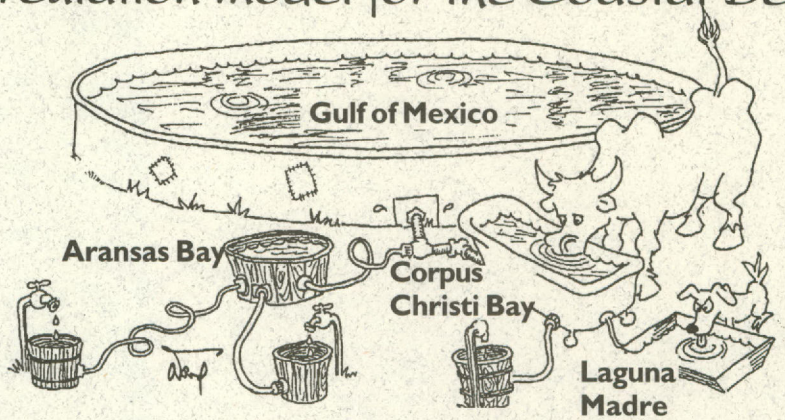
Several models under development through the CCBNEP were presented. One model quantitatively describes nutrient and pollution loads impacting Coastal Bend bays and estuaries. Parameters such as rainfall, runoff, land use, and topography are evaluated in conjunction with pollution data to estimate the total load reaching the bays and estuaries. Combined with new circulation models, scientists will have tools to estimate the total loadings entering the system.

The information shared at the Technical Meeting is being used to develop the CCBNEP State of the Bay Report, scheduled for completion in May 1998. The information is also being included in the draft ***Coastal Bend Bays Plan***, which is scheduled for public release in January 1998.

To keep the good news good, researchers at the Technical Meeting recommend implementing preventative management actions - rather than reactionary ones - to ensure future generations can enjoy all that the Coastal Bend has to offer. The ***Coastal Bend Bays Plan*** will provide a framework to achieve this goal.

For more information contact the CCBNEP office – 512/980-3420

Circulation model for the Coastal Bend



Species-Habitat Database Nears Completion

Scientists and natural resource managers have identified the need to compile a list of all documented plants and animals found within the Coastal Bend. Certain groups of plants and animals, such as shellfish and birds, which are popular among amateur collectors and naturalists, have been extensively listed and published. However, the task of compiling a comprehensive list of plants and animals for the entire Coastal Bend had not been attempted – that is until now.

The CCBNEP project is being conducted by the Center for Coastal Studies, TAMU-CC. The project entails creating a relational database from information contained in the CCBNEP "Habitat & Living Resources" characterization report.

The database documents a total of 3,178 species – 836 plants and 2,342 animals - in the Coastal Bend. When complete, it will allow users to search for habitat-species documentation, including who, where, and when it was cited. The database also includes species listed as endangered or threatened. The database is intended for use by resource managers, scientists, teachers, students, and planners interested in gathering information about a particular plant or animal, or organisms within a specific bay or habitat.

Completion of the database is scheduled for October 1997. Upon completion, access to the database will be provided via the CCBNEP Web Page: www.sci.tamucc.edu/ccbnep.

Neighborhood NEWS

Corpus Christi Sparkles:

Flour Bluff and North Padre Island communities lead Boat Disposal Amnesty Program

The City of Corpus Christi and Project Sparkle, a community-based cleanup program, worked in successful partnership to design and implement a Boat Disposal Amnesty Program in June. The program netted a total of 35 old and discarded boats from shorelines, vacant lots, and other neighborhood areas.

Old and illegally dumped boats are an eyesore, but they are also an environmental hazard if the paint, oil or gas gets into the water or soil.

"Also significant is the citizen initiative to dispose of their own waste, rather than asking the City to solve the problem for them. The City is happy to assist communities to design and implement this type of clean-up project," added Volk.

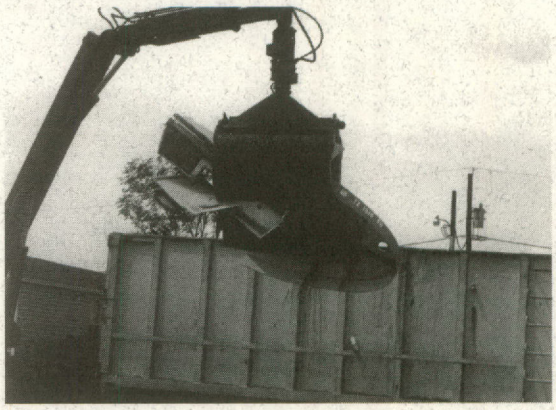
Project Sparkle was initiated by Flour Bluff citizens concerned by the illegal dumping and litter in their community. Now, with support from the City of Corpus Christi, Project Sparkle has expanded city-wide. Through Project Sparkle, community leaders and citizens have an opportunity to utilize City resources for clean-up events and public education efforts in their neighborhood.

Up...

The City Solid Waste Services Department offered free pick-up and disposal of old and abandoned boats in North Padre Island and Flour Bluff, the two largest seaside communities in Corpus Christi. Residents were asked to cut up their unwanted boats in 2-3 pieces and put them out for pick-up.

Up...

"The need for such a boat disposal program was expressed by many residents in Flour Bluff and North Padre Island," said Dawn Volk, City of Corpus Christi Solid Waste Compliance Officer and program coordinator. "It shows that the community is ready to participate in a cooperative effort to remove old and abandoned boats."



...And Away!

Working Together

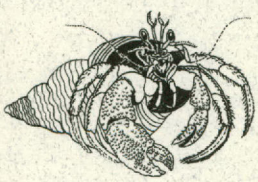
Project Sparkle's success depends on citizen involvement, and so does the success of the City Solid Waste Enforcement Program. The Enforcement Program relies on citizens to report illegal dumping, document license plate numbers, provide descriptions of offenders, take photographs, and act as witnesses for prosecution in illegal dumping court cases.

In 1996, the City spent approximately $100,000 to clean up 220 tons of debris from 330 illegal dump sites, some of which contained abandoned boats. Approximately 45 of these sites were cleaned up by the illegal dumping offenders themselves, after an investigation took place and the offenders were located. Citizens have been very helpful by acting as the ears and eyes of the community. For information on Project Sparkle, or any suspicious dumping activity, please call Dawn Volk at 857-1974.

Calendar of Upcoming Events

October 1	Citizens Advisory Committee Slide Presentation Workshop
October 2	Scientific and Technical Advisory Committee Meeting
October 9	Management Committee Meeting
November 13	Scientific and Technical Advisory Committee Meeting
November 20	Joint Policy & Management Committee Meeting

For More Information, Call: 512/980-3420



New Video Available

Preserving the Legacy

The second installment of CCBNEP's video series is complete and available for checkout. *Preserving the Legacy* includes a Program introduction but focuses more closely on priority issues in the CCBNEP Project area. Those wishing to show the video to their group or organization can request a copy through the Program office at 512/980-3420.

Next Newsletter

- Wetland Restoration and Creation
- Estuarine Circulation Models
- Freshwater Inflows
- Bay Users Guide

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