AROUND THE BEND

News of the
Coastal Bend's Bays & Estuaries

Vol. 1, No. 3 - June 1995

The CCBNEP Focuses on Bay Bottom Habitats and Aquatic Vegetation in Year Two Studies

Of the eight major studies planned for the Program's second year, three will focus on the bay bottom habitats and aquatic vegetation within our study area.

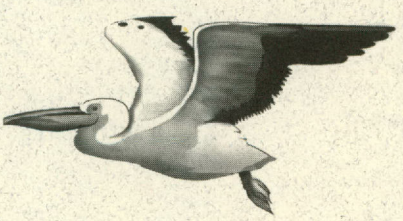
The first study is entitled "Characterization of the Effects of Anthropogenic and Natural Influences on Vegetated and Unvegetated Bay Bottom Habitats in the CCBNEP Study Area." The purpose of this study is to identify the effects of anthropogenic (i.e. human) and natural influences on the bay bottom. The goal of this project is to describe the relative extent, magnitude, and periodicity of effects of human activities on the physical, chemical, and biological characteristics of submerged habitats (including reef structures), and compare such effects to historic and current levels/effects from natural disturbances. Human activities that will be investigated include shrimp harvesting, commercial tug and barge operations, construction, oil and gas operations, recreational boating, historic shell and maintenance channel dredging, and the placement of maintenance dredge material.

The second study entitled "Seagrass Mapping and Trend Analysis for Aransas and Copano Bays and Their Associated Bays," will complete seagrass bed mapping work already in progress by the Texas Parks and Wildlife Department within the CCBNEP study area. Once all the seagrass beds have been mapped, a trends analysis will be performed on selected areas within our study region to determine if the beds in these areas are expanding or shrinking, and to attempt to determine the cause(s) of any losses.

A third study, entitled "Current Status and Historical Trends of Wetlands and Other Coastal Habitats Within the CCBNEP study area," will be conducted by the National Wetlands Inventory Program of the U.S. Fish & Wildlife Service. This study will rely on existing data to assess the status and trends of freshwater and saltwater wetlands and other aquatic habitats, natural and dredged material islands, natural and artificial hardened shorelines, and riparian woodlands within the CCBNEP study area.

All of these projects are to be completed by August 31, 1996 and will result in data that will be instrumental in determining the extent of any habitat alterations in the CCBNEP area and their probable causes. This information will provide the basis for the development of management solutions regarding bay habitats.

For more information, contact Hudson DeYoe, CCBNEP Research Coordinator, at 985-6767.



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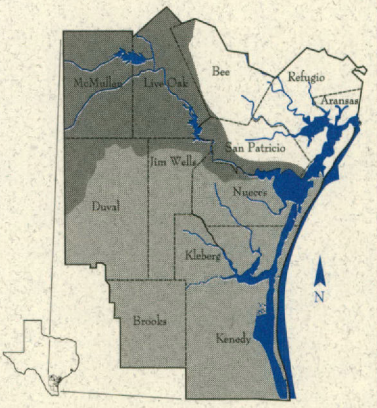


Corpus Christi Bay National Estuary Program Study Area

Workshop Targets Local Governments

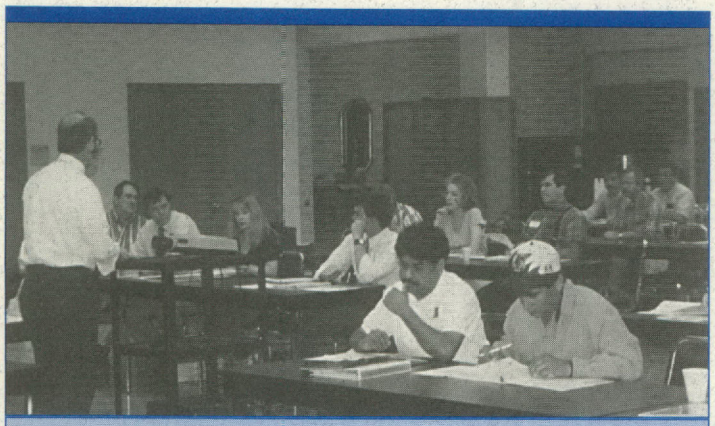
Estuaries and Coastal Waters the Focus of Two Day Workshop

Over 70 local government officials, educators, agency staff, and private citizens attended a workshop on managing and protecting coastal resources on May 18 and 19. The workshop, which was held at Del Mar College, provided a forum for learning about, and sharing innovative approaches to, watershed management on a regional level.

The workshop was one in a series of forums conducted around the country by the U.S. Environmental Protection Agency. Steve Bliven and Mark Nelson from the consulting firm of Horsley and Witten led the workshop. Several of the presentations given over the course of the two days were made by local government and agency leaders, including Judge Josephine Miller of San Patricio County, who opened the workshop with a reflection on why the CCBNEP was created. "When we get into areas of conflict — between different user groups — we need to back off and realize that what we're really talking about is ***life***. If there is no water, there is no life," Judge Miller reminded the participants. "If we don't manage our resources, we won't be able to survive here." Judge Miller highlighted the critical role that local governments will play in the development and implementation of watershed management plans, and the need to support local governments as they seek creative ways to deal with watershed management issues.

The workshop provided participants with ideas for designing and implementing Best Management Practices (BMPs), based on the experiences of local governments from around the state of Texas and elsewhere in the country. Steve Bliven, who has helped to organize workshops around the country, observed "people at the Corpus Christi workshop seemed genuinely interested in hearing about different ways to approach watershed management. The level of audience participation and interaction was very high, and bodes well for future cooperation between various agencies and government officials."

John Barrett (l), a row-crop farmer from San Patricio County, reviews materials from the workshop with (from left) Jay Reining, executive director of the Coastal Bend Bays Foundation and Robyn Cobb from the U.S. Fish and Wildlife Service. All are members of the CCBNEP's Management Conference.



The audience for the workshop included local government officials, city planners and engineers, agency personnel, and private citizens.

That sentiment was echoed by Richard Volk, Program Director for the CCBNEP, who remarked that "the workshop provided a forum for information sharing between resource management professionals dealing directly with communities. I believe we all saw the many opportunities for improvements in the way we plan and implement new development."

The workshop covered a variety of tools for watershed management, including both regulatory and non-regulatory approaches and land stewardship techniques. Ideas for financing watershed management programs were discussed, with local examples of watershed management provided by Victor Medina from the City of Corpus Christi and Robyn Cobb with the U.S. Fish and Wildlife Service.

For more information, contact Richard Volk at 985-6767.

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. The newsletter design and layout is done by East Meets West Productions, Inc. **For more information about the program, call 512/985-6767.**

Contributors to this issue include Tom Ballou, Mari Brennan Barrera, Hudson DeYoe, James Dodson, Angela de la Garza, Edward Jones, Paul Montagna, Tom Rodino, Kevin Tuerff and Richard Volk.

News items, photographs, and letters are welcome, and may be submitted to:

CCBNEP
TAMU-CC Campus Box 290
6300 Ocean Drive
Corpus Christi, Texas 78412

The deadline for submission for the next newsletter is August 11, 1995.

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 names or commercial products does not in any way constitute an endorsement or recommendation for use.

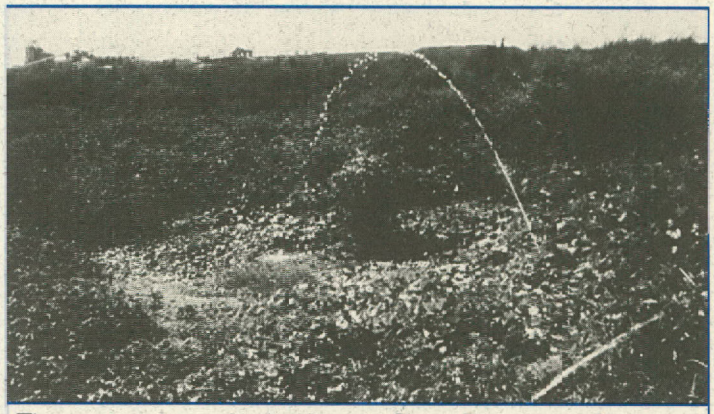
The Reynolds Alternative Closure Demonstration

The Reynolds Metals Company Sherwin Alumina Plant, located near Gregory, is one of the largest and oldest Coastal Bend area industries. The bauxite refinery has operated continuously since 1953, and has weathered its share of industrial challenges. One of the challenges being addressed currently is the closure of hundreds of acres of bauxite tailings, also known as "red mud," which have accumulated over the life of the plant.

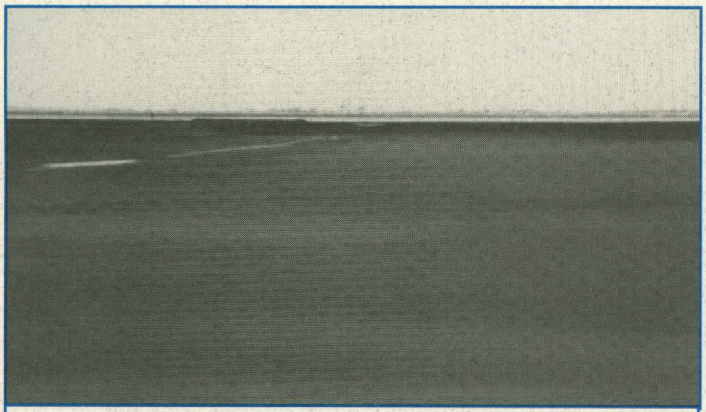
The Sherwin Plant had begun producing alumina, along with bauxite tailings, in June of 1953. For the next fifteen years, the tailings were accumulated in a series of storage beds located just north of the plant proper. The tailings present a challenge throughout the alumina industry. When the tailings are fresh, some process materials left in the tailings inhibit the growth of plants, although over time, natural weathering converts the retained materials to forms that no longer interfere with plant growth. In addition, the processing of the tailings refines out not only the alumina, but also the organic materials and many of the trace elements ordinarily found in soil. This causes the tailings, while dirt-like in appearance, to lack the necessary ingredients to be a true "soil." The material is also soft and lacks the structural strength we normally expect soil to have, yet it becomes crusty and brittle and can form a dusty, thin layer as the surface dries.

In late 1991, Reynolds began a dialogue with regulatory agencies and the communities surrounding the plant, to address the challenge of closing its historic tailings impoundments and the limitations on local water supplies. Two important related initiatives have been undertaken: a Regional Water Reuse Study, and an Alternative Closure demonstration. Together they have the potential to benefit both Reynolds and the surrounding communities.

In the Spring of 1992, an ambitious experiment was begun on local bed number five. The experiment involved experts from the U. S. Soil Conservation Service (now the Natural Resources Conservation Service), the Texas Agricultural Extension Service, Texas A&I University, the Texas Water Commission (now the TNRCC), and several local communities. The object was to try and grow hardy prairie grasses and other native plants on the tailings using simple amendment materials such as composted grass clippings and shredded brush. The experiment met with unqualified success. The scientific experts then suggested expanding the experiment to use wastewater treatment plant effluents, both solid and liquid, to condition the tailings.



The same storage area after the Alternative Closure Demonstration Project was put into place. *(photo courtesy of Tom Ballou)*



This red mud or tailings storage area is shown before the Alternative Closure Demonstration Project began.
(photo courtesy of Tom Ballou)

A technical steering committee was formed, consisting of many of the same people who had participated in earlier discussions and wastewater engineers from several of the plant's surrounding communities. With the guidance of Region 14 staff from the TNRCC, plans were developed to test two different types of municipal waste recycling as the key elements of an alternative closure demonstration for industrial waste impoundments.

A project was started in October 1993 to test the application of treated wastewater bio-solids on a 25 acre plot of alumina tailings. The cities of Portland, Gregory, and Aransas Pass have been hauling diluted mixtures of bio-solids and effluent to the site for distribution through a simple irrigation network. This experiment is being monitored by the TNRCC, the NRCS, the Texas Agricultural Extension Service, the Texas Parks and Wildlife Commission and Texas A&M University-Kingsville. The experiment is attempting to deposit the solid nutrients near the surface of the tailings to promote plant growth and create wildlife habitat, while percolating the water portion through the beds to become process water for the Sherwin Plant. By the Fall of 1994, the response had been quite amazing.

Another experiment is in progress on local bed eighteen. The treated effluent water from the Sherwin wastewater treatment plant flows through a maze of aquatic plants which "polish" the water by removing the nutrients. The water then percolates down through the beds and returns to the plant process water system through a network of drains. The experiment, in operation since July of 1993, is already very promising. The water which is produced is of very high quality and contains a bonus in the form of old process materials which were thought to have

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been lost, but which the percolating water is now recovering to be processed. The growth of the original plant materials which were selected in the experiment has exceeded all expectations. More importantly, a rapid and fascinating plant community succession, spreading beyond the experimental plot, has begun, opening the door to other possibilities. A number of species of wildlife — amphibians, birds and mammals — have made the tiny area their home and appear to be successfully reproducing.

Both experiments are important parts of a Regional Water Reuse and Drainage Study sponsored by the San Patricio Municipal Water District and the San Patricio County Drainage District, and funded by a group of industries, including Reynolds, Dupont and OxyChem, all the communities in San Patricio County, and the Texas Water Development Board. The economics of a regional water reuse system focused on the Sherwin Plant are still under review and several phasing options are being explored while the field experiments, which will help structure the regulatory status of the project, are being completed.

The preliminary engineering study, completed in August of 1994, confirmed the practicality of using the experimental techniques to develop a model system of water recycling. This could provide important water conservation benefits in our dry area, important cost saving for both local industries and communities, and go a long way toward "drought proofing" local industries to protect Coastal Bend jobs.

For more information, contact Tom Ballou, Reynolds Metals Company, at 777-2352.

Third Biennial Gulf of Mexico Symposium a Success

Visitors, Residents Gather in Corpus Christi to Learn about the Gulf

Corpus Christi was the site of the third Gulf of Mexico Symposium, a biennial event sponsored by the EPA's Gulf of Mexico Program and co-sponsored this year by the Texas General Land Office. The Symposium was an outstanding success, attended by over 2,000 students, teachers, scientists, business and industry representatives, and government officials from the U.S., Mexico and Caribbean countries. Hundreds of elementary, junior high and high school students from Texas and the other Gulf states were able to interact with over 300 students who attended from Mexico.

The Symposium featured many interactive sessions with presentations from students, teachers, and technical experts on the following issues: marine debris, coastal and shoreline erosion, freshwater inflow, living aquatic resources, toxic substances and pesticides, habitat degradation, nutrient enrichment, public health, National Estuary Programs, sustainable development, business and industry, and congressional legislation. Participants mixed classroom-style presentations with field trips to selected sites around the Coastal Bend where they could explore some of these issues with local experts.

For more information, contact Angela de la Garza at 512/463-5108.

Mexican high school students from Ciudad Acuña, Piedras Negras, and Matamoros participated in the tour of the inner harbor sponsored by the Port of Corpus Christi Authority as part of the Gulf Symposium. The tour highlighted the uses of the inner harbor. *(photo by Richard Gonzales H.)*

Update on Reservoir Operating Plan for Freshwater Inflows to the Nueces Estuary

After receiving the endorsement of the Nueces Estuary Advisory Council at their February 27, 1995 meeting, the "Pass-Through Plan" was submitted to the Texas Natural Resource Conservation Commission (TNRCC) on March 23, 1995. TNRCC approved the plan on April 26, 1995 and issued a new Agreed Order implementing the plan on April 28, 1995.

Reservoir operations under this new order were initiated as of May 1, 1995. The "target" inflow to be provided to the Nueces Estuary in the month of May under the new order was 23,500 acre-feet, based on the reservoir system storage being below 70 percent of total capacity. However, during the first three and a half weeks of the month, very little streamflow was recorded as coming into the reservoir system to be "passed-through." Rainfall over the last few days of the month resulted in a slightly increased level of streamflow that generated some additional amounts to be "passed-through" to the estuary, but far less than the target of 23,500 acre-feet.

As a result, the estuary received all of the natural streamflow that occurred during the month of May, with no capture of water for storage in the reservoirs. At the same time, no water previously stored in the reservoirs was released for the purpose of meeting some fixed monthly inflow requirement, as would have been the case under the old order.

For more information, contact James Dodson at 880-3868.

Cumene Spilled into Corpus Christi Ship Channel

No indication of long-term human or environmental damage

The Coastal Bend experienced its largest chemical release — and the first major waterborne chemical incident — in this area on April 20. Just before noon, the Tankship MAERSK SHETLAND collided with the Tank Barge DC-304. The collision occurred in the Corpus Christi Ship Channel near Naval Station Ingleside when the tankship, which was overtaking the barge and the tug that was pushing it, lost steering control and struck the port side of the barge. The collision damaged one of the barge's cargo tanks and caused the barge to break free of the tug.

The damage allowed the contents of the cargo tank, 4400 barrels of cumene (approximately 185,000 gallons), to escape into the channel. The contents of the other five cargo tanks (an additional 22,000 barrels) did not spill. The tankship sustained only minor damage to its bow; none of its cargo of vinyl chloride monomer (VCM) was released.

Cumene is an aromatic hydrocarbon with an extremely low odor threshold; the vapors are very irritating. It is somewhat toxic in higher concentrations (TLV 50 ppm), but is not carcinogenic and is not a significant health threat in low concentrations. The material is very volatile; it evaporates quickly, and can create a flammable or explosive mixture in air. It is not miscible in water, and tends to stay on the surface until it evaporates.

Initial assessments using the resources of several Federal and State agencies indicated that the spilled cumene would evaporate in less than 18 hours, and that the best response strategy was to keep people and potential ignition sources away from the spill site and let the material evaporate. At the same time, local emergency management officials took a variety of actions to advise the public of the potential risks from the vapors and the best ways to avoid exposure. The overall threat was assessed as slight to moderate, with no long-term effects from short-term exposure. There were no indications that vapors in populated areas approached dangerous levels.

From the information available to the Coast Guard at this time, there is no indication that any significant or long-term human injury or environmental damage resulted from this spill. Once the spilled cumene evaporated, the remaining cargo was transferred to another barge and the damaged barge was removed to a repair facility. The investigation into the cause of the casualty is ongoing.

The cumene spill brought shortfalls in coordination and communication processes to the attention of Federal, State, and local responders and emergency managers. The incident resulted in so many telephone calls to emergency management and law enforcement officials that most telephone systems, including 911, were overwhelmed. This complicated and hampered government notification and communications processes, as well as public awareness processes. The fact that the wind shifted 180 degrees within 30 minutes of the release, and continued to constantly shift throughout the next 24 hours, also complicated the notification and coordination processes. The Coast Guard is working with the State, the Port of Corpus Christi Authority, and local agencies to streamline and improve the notification process so that the community will be better prepared in the case of any future chemical releases.

The best source of information on the environmental and health impacts of the spill is the Texas Natural Resource Conservation Commission, which was the lead state agency for the response. Information about the investigation into the incident can be obtained by contacting the Coast Guard's Marine Safety Office in Corpus Christi.

For more information, contact Captain Thomas B. Rodino, Commanding Officer, USCG Marine Safety Office at 888-3162.

Governor Names Environmental Awards

Three Winners from Corpus Christi

A local refinery, television station, and group of junior high school students are among the 13 winners of the 1995 Governor's Awards for Environmental Excellence. These awards recognize outstanding achievement for protecting the environment in Texas by Governor George W. Bush and the Texas Natural Resource Conservation Commission's CLEAN TEXAS 2000 program.

The winners were selected from more than 350 applications by the Governor's blue ribbon selection committee that included members from industry, education, civic groups, local governments and environmental groups. Governor Bush presented the awards on Thursday, May 11 at the third annual CLEAN TEXAS 2000 awards banquet in Austin.

VALERO REFINING COMPANY won a special award for its Marine Vapor Recovery System. The company, which has invested more than $30 million to protect the environment through pollution prevention, reduced emissions by 25 percent with the Recovery System. This $11 million project is 98 percent efficient in capturing and recycling vapors that are emitted when ships and barges are loaded with gasoline. Valero is able to recover 2.5 million gallons a year with this system.

GREGORY-PORTLAND JUNIOR HIGH SCIENCE CLUBS were winners in the Youth Category. Approximately 75 students are involved in paper recycling, campus landscaping, water monitoring, and beach cleanups. The most significant project involved the monitoring of water quality in La Quinta Channel, in which students helped to allay the fears of local residents who felt the channel had unsafe pollution levels.

GULF COAST BROADCASTING, KRIS-TV6 won in the Media Category. The channel, an NBC affiliate, sponsors a nightly environmental segment called "Earth Tip." Elementary school students ask environmental questions prerecorded on camera that are answered by chief meteorologist Dale Nelson. Every elementary school in Corpus Christi has participated in "Earth Tip."

For more information on Clean Texas 2000, contact Kevin Tuerff at 512/239-3155.

Calendar of Upcoming Events

July 10	Citizens Advisory Committee and Local Government Advisory Committee meeting
July 18-20	Coastal Zone '95 Symposium, Tampa, FL. FMI contact Jessica Cogan, 202-260-7154
August 10	Scientific-Technical Advisory Committee meeting
August 24	Management Committee meeting

For More Information Call: 512/985-6767

Next Newsletter

- Summaries of completed first year studies
- Review of first year activities
- Local governments projects
- Report on mecia tour

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"Estuaries: Bridges from Watersheds to Coastal Seas"

Estuarine Research Federation holds
13th Biennial International Conference
November 12-16, 1995 in Corpus Christi

The 1995 Estuarine Research Federation (ERF) conference will be held at the Marriott Bayfront Hotel in Corpus Christi in November. The purpose of the conference is to exchange information on all aspects of research, management, and public policy regarding estuaries. The theme "Estuaries: Bridges from Watersheds to Coastal Seas" reflects recent emphasis on the central role that estuaries play in coupling the movement of materials between the land and the coastal zone. Because of this role, basic research into estuarine ecosystem processes is a priority with local, state, and federal government officials as they grapple with natural resources that are in decline or are being degraded.

The ERF conference will provide researchers, managers, policy makers and educators with an opportunity to come together to exchange information on these important issues. The program will include plenary speakers and a series of integrated symposia organized to compare research and management in estuaries, coastal oceans, and Great Lakes ecosystems.

The ERF biennial conference usually attracts about 700 people. Early registration is available until October 1; after that date the cost of participating in the conference will go up. For more information about the conference or the ERF, contact ERF'95. By mail: UTMSI, P.O. Box 1267, Port Aransas 78373. By e-mail: erf@95utmsi.zo.utexas.edu. By fax: (512)749-6777. Announcements and registration forms can be obtained by anonymous Internet FTP services: ftp 192.138.168.29, utmsi, anonymous, get readme.text, cd erf95, dir, get filename, bye.

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