Texas Wetland News

and WETLAND CONSERVATION PLAN UPDATE

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TEXAS PARKS & WILDLIFE

JULY 2002

Vote for Your Favorite Wetland on the Great Texas Wildlife Trail

The Great Texas Wildlife Trails are designed to make it easy for travelers to find the best wildlife viewing sites throughout the state. They bring tourism dollars to rural communities, raise awareness about Texas wildlife and habitats, provide recreational opportunity, build public support for conservation, and provide economic incentives for landowners and communities to conserve and manage habitats for wildlife and wildlife enthusiasts.

In January of this year, the Texas Transportation Commission approved $770,880 in federal TEA-21 grant funding for the Prairies and Pineywoods Wildlife Trail. TPWD has already received over 140 site nominations for the Trail and will continue to seek nominations through August. The goal is to develop maps and highway signage that will help people find the best wildlife viewing sites in north and east Texas. Please consider nominating your favorite wetland viewing area for the Trail. A nomination form, list of nominated sites, site criteria and other information can be found at **www.tpwd.state.tx.us/birdingtrails/prairies_trail.htm**. For more information, contact Linda Campbell, Nature Tourism Coordinator for the Wildlife Diversity Branch of TPWD in Austin (512) 389-4396.

Community-based Habitat Restoration Funding Opportunity

The Community-based Habitat Restoration Program Partnership is a multi-year, regional partnership between the Gulf of Mexico Program's Gulf Ecological Management Sites Program (GEMS) and the National Oceanic and Atmospheric Administration (NOAA) Community-Based Restoration Program (CRP). The purpose of this partnership is to strengthen conservation efforts in GEMS by supporting habitat restoration that benefits marine resources and fosters local stewardship of the sites. The GEMS Program is a regional resource management network established to protect, restore and conserve areas of ecological significance across the Gulf of Mexico. This is a voluntary collaboration between the Gulf States, the Gulf of Mexico Foundation, the Gulf of Mexico Program, the Department of Interior, nonprofit organizations and academic institutions. The CRP, through the Office of Habitat Conservation within NOAA Fisheries, is providing federal funding, technical assistance and management expertise for locally-driven restoration projects.

PROJECT SPECIFICATIONS

Proposals will be accepted for projects that involve restoration, creation, or enhancement of habitats within GEMS sites (see list on page 2). These projects must be "ground breaking" type projects, where work is begun and completed within the approved timeframe. A 1:1 federal match is required, and can be in-kind. Funding will not be provided for studies, workshops, or other work elements that do not involve actual habitat improvement. Furthermore, the proposed habitat improvement must address the needs of those living resources deemed "NOAA Trust Resources" (see following section). Proposals should outline what type of work is going to be completed, how many acres will be restored, created, or enhanced, and have an education outreach component. Funding will be allocated for one year for all projects, and project timelines will preferably be one year; however, projects taking up to 18 months for completion but only requiring one year of funding will also be considered. Additionally, applicants should explain how success/failure will be determined for the project and the monitoring techniques that will be applied for this determination.

continued on the next page

ADDITIONAL INFORMATION

Gulf Ecological Management Sites Program:
www.epa.gov/gmpo/gem2.html

NOAA Restoration Center CRP:
www.nmfs.noaa.gov/habitat/restoration/community/index.html

Community-based Habitat Restoration Funding Opportunity, continued

NOAA TRUST RESOURCES

NOAA trust resources are living marine resources that include commercial and recreational fishery resources (marine fish and shellfish and their habitats); anadromous species (fish, such as salmon and striped bass, that spawn in freshwater and then migrate to the sea); endangered and threatened marine species and their habitats; marine mammals, turtles, and their habitats; marshes, mangroves, seagrass beds, coral reefs, and other coastal habitats; and resources associated with National Marine Sanctuaries and National Estuarine Research Reserves. These resources serve as the basis for this program and applicants must meet the following priorities for partnership:

- areas identified by NOAA Fisheries as essential fish habitat (EFH) and areas within EFH identified as Habitat Areas of Particular Concern;
- areas identified as critical habitat for federally or state listed marine and anadromous species;
- areas identified as important habitat for marine mammals and turtles;
- watersheds or such other areas under conservation management as special management areas under state coastal management programs;
- other important commercial or recreational marine fish habitat, including degraded areas that historically were important habitat for living marine resources.

PROPOSALS should be submitted by August 25, 2002, and proposal forms can be obtained from:

Kay Jenkins, Texas State GEMS Coordinator at (361) 825-3245 **kay.jenkins@tpwd.state.tx.us**

Dr. Quenton Dokken, Executive Director, Gulf of Mexico Foundation at (361) 882-3939 or **Gmexico@aol.com** or **www.gulfofmexicofoundation.com**

Texas GEMS sites

Aransas National Wildlife Refuge
Candy Abshier Wildlife Management Area
Flower Garden Banks National Marine Sanctuary
Guadalupe Delta Wildlife Management Area
Laguna Madre
J.D. Murphree Wildlife Management Area
Padre Island National Seashore
Sea Rim State Park
Welder Flats Coastal Preserve
Armand Bayou Coastal Preserve and Nature Center
Christmas Bay Coastal Preserve
Freeport Liberty Ship Reef Complex
Laguna Atascosa National Wildlife Refuge
Matagorda Island Wildlife Management Area
North Deer Island Sanctuary
South Bay Coastal Preserve

Wetland Project Site Registry Program

The Registry Program was designed to increase wetland conservation in the state of Texas by creating a method in which individuals, private consulting companies, and government agencies could more easily find private landowners interested in conserving wetlands on their property. The process begins when an interested private landowner adds their property information to the Registry. Non-confidential portions of those data such as county, riverbasin, and habitat type are available for viewing through the Registry Program search page on the TPWD Web site at **www.tpwd.state.tx.us/wetlands/programs/registry/searchdata.htm**. An individual or entity looking for areas in which to do wetland restoration or enhancement can then search the private registry database by county or riverbasin. Confidential information, such as contact information and specific restoration goals of the landowner, is only disclosed to interested parties after the landowner has been contacted and has specifically approved the disclosure of such information.

If you are interested in learning more about the Wetland Project Site Registry Program, you can view the informational brochure at **www.tpwd.state.tx.us/wetlands/publications/brochure0101.pdf** or request one to be sent to you by e-mailing **jennifer.key@tpwd.state.tx.us** with your name and mailing address. The brochure contains information on the program, and has a postage-paid form that landowners can fill out and mail to the project manager in order to get their property in the Registry Program.

If you have questions about the program or would like to request brochures to distribute, please e-mail Jennifer Key or call (512) 389-8521.

Updated Version of Texas Coastal Wetlands Now Available from GLO

Texas Coastal Wetlands: A Handbook for Local Governments has been prepared to provide relevant information for local officials, citizens, landowners, and groups interested in conserving, creating, or restoring wetlands along the Texas coast. It focuses on local, voluntary planning initiatives and is designed to help communities balance development with the long-term productivity of their wetlands. The handbook is published by the Texas General Land Office – if you would like a copy, call Kenny Helgren at 1-800-998-4GLO (within Texas) or (512) 936-0683, or e-mail: **coastpublications@glo.state.tx.us**.

The handbook has been used by these two local governments to help them develop wetland conservation plans:

Smith, E. H., and S. J. Dilworth 1999. Mission/Aransas Watershed Wetland Conservation Plan. Center for Coastal Studies, TAMU-Corpus Christi. 99 pp. This plan was funded with a grant from the EPA through the GLO. Contact Liz Smith at (361) 825-6069 for more information.

The City of Seabrook developed the Seabrook Wetland Conservation Plan. It was prepared by the Houston-Galveston Area Council in 2000. Contact Christy Durham at HGAC at (713) 993-4560 for information.

Shamrock Island Receives Funding for Monitoring Work and Maintenance

Shamrock Island is the remainder of a recurved barrier spit that once extended southwestward from Mustang Island into Corpus Christi Bay. The island, which was separated from Mustang Island by Hurricane Celia in 1970, is home to the Shamrock Island Preserve, one of the most productive colonial waterbird nesting areas on the Texas coast. Coastal wetlands on and adjacent to Shamrock Island include marshes, mangroves, and seagrasses. The critical ecological importance of Shamrock Island was recognized in the early 1990s when the Nature Conservancy of Texas led an effort to acquire the island, which is in eastern Corpus Christi Bay, about two miles west of Mustang Island.

Since detachment from Mustang Island, the north and northwest areas of Shamrock Island have experienced considerable beach erosion and wetland loss, losing approximately 17 acres between 1950 and 1997. Without proactive measures, this trend of erosion would have continued, resulting in the loss of valuable habitats on the island, including submerged and emergent wetlands, beach areas, and adjacent uplands.

The Texas General Land Office (GLO) and Texas Parks and Wildlife Department (TPWD) received a grant under the National Coastal Wetlands Grant Program from the U.S. Fish and Wildlife Service for a project that would protect and restore wetlands and other habitats on and near Shamrock Island. Local match for the federal funds were largely provided through monies obtained in restitution for an incident that damaged state-owned lands in the upper Laguna Madre. Other contributors and partners in the project include the U.S. Army Corps of Engineers, Texas Audubon Society, and the Coastal Bends Bays Foundation. The grant was used for the construction of an offshore breakwater along the north and northwest end of Shamrock Island, creation of shallow water habitat/wetlands, and the construction of a feeder beach outside the breakwater to ensure the flow of sand to the beach at the south end of the island.

The Shamrock Island Shoreline Protection and Wetlands Restoration Project was completed in spring of 1999 and was the recipient of the 1999 Coastal America Partnership Award. In November 2000, the GLO funded an 18-month post-construction topographic and hydrographic survey of the wetland restoration area, feeder beach area, and geotubes at Shamrock Island. The purpose of the survey and acquisition of aerial photography was to assess the performance of the geotubes, feeder beach, and wetland restoration area. Overall, the project was performing as designed; however, the survey found that one geotube's crest elevation had decreased in one place. The survey also found that the area available for planting within the wetlands restoration area had decreased by about 10% and the total volume of added fill for the feeder beach had decreased since construction. The report recommended continued monitoring of the project to track changes to the geotubes, wetlands, and feeder beach.

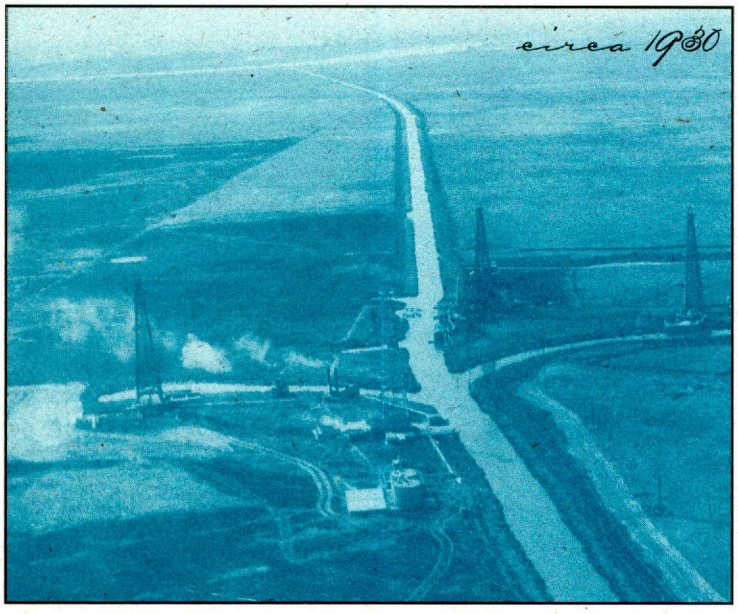
On October 29, 2001, representatives from TPWD, Nature Conservancy of Texas, U.S. Fish and Wildlife Service, Coastal Bend Bays & Estuaries Program, and Shiner Moseley and Associates, Inc. conducted a site visit to Shamrock Island to review the current condition of the wetlands restoration area shoreline stabilization improvements. It was observed that the geotube shroud is damaged in places - maintenance/replacement of the shroud is needed to protect the exposed polyester of the geotube from UV degradation. Also, there are two areas where the geotube crest height has decreased, causing the geotube to become submerged in those areas. Further investigation of the conditions of the geotubes is needed to determine what level of maintenance and/or remedial action is necessary. It appears that more than 50% of the total feeder beach that was originally placed has been depleted and plans to re-nourish the feeder beach are needed. It was also recommended that the planting area in the wetlands restoration area be expanded by mechanically placing more fill into the area, which would create more area suitable for plantings of *Spartina alterniflora.*

The Shamrock Island Habitat Monitoring and Protection project would result in the acquisition of post-construction aerial photography and topographic and hydrographic surveys of the wetland restoration area, feeder beach area, and geotubes at Shamrock Island. The true color 1:6000 scale aerial photography would allow project managers to monitor and assess the geotubes, wetland restoration area, and feeder beach on Shamrock Island Preserve. The monitoring work and resulting report would focus on assessing the current project needs, determining the scope of work, and the magnitude of funds that would be required to design and implement maintenance and remedial measures on the original project. In addition, to prevent UV degradation of the existing geotubes, the proposed project would install a new protective shroud on exposed geotubes. The installation of new shrouds on exposed geotubes at the project site would prolong the life of the geotubes, benefiting one of the most productive colonial waterbird nesting areas on the Texas coast by allowing the geotubes to continue to function as effective shoreline stabilization.

The original Shamrock Island shoreline stabilization/wetland restoration project involved an investment of approximately $900,000 of private and public funds to stabilize the shoreline of Shamrock Island and create the wetland restoration area. The report generated from the photography and monitoring would assist the project partners in protecting that investment by providing the information needed to seek additional grant funding for project maintenance and future restoration work on Shamrock Island.

The total estimated cost of the Shamrock Island Habitat Monitoring and Protection project is $30,000. Approximately, $15,000 of the budget would be spent on contracting an engineering/consulting firm to acquire aerial photography, monitor and assess the geotubes, feeder beach, and wetland restoration area, and to develop a scope of work and estimated cost for maintenance and remedial actions needed to sustain the life of the project. Another $15,000 would be spent to a contractor for installation of new UV protective shroud on exposed geotubes.

The Coastal Bend Bays & Estuaries Program (CBBEP) is contributing $24,000 of the projected costs and has assigned Leo Trevino- (361) 885-6244 - as the lead project manager. TPWD is contributing a 20% match ($6,000) to complete the necessary funding. TPWD's funding comes from restitution fees paid by responsible parties for fish and wildlife killed by events occurring on state lands and waters.



WETLAND RESTORATION AT THE Bessie Heights Marsh

Flash back in time 3 generations ago.

I am slowly traversing the sawgrass (*Cladium jamaicense*) marsh, on what will someday be known as the Nelda Stark Unit of Texas Parks and Wildlife Department's Lower Neches Wildlife Management Area. As I walk the area I can hear the sawgrass whispering in the slight breeze that is blowing across the marsh. With each step I hear the squish of mud under my boot and smell the rich earthy smell of the marsh. I see many signs of wildlife in the area - puddle ducks which come here to feed on sawgrass seeds, trails of mink and raccoon, scat of muskrat, gray fox and bobcat. I was told that red wolves once roamed these marshlands, although I have never seen them here. As I work the marsh looking for places to put out my traps for muskrat, river otter, and mink, I think times are good and I am happy to be in the marsh I love.

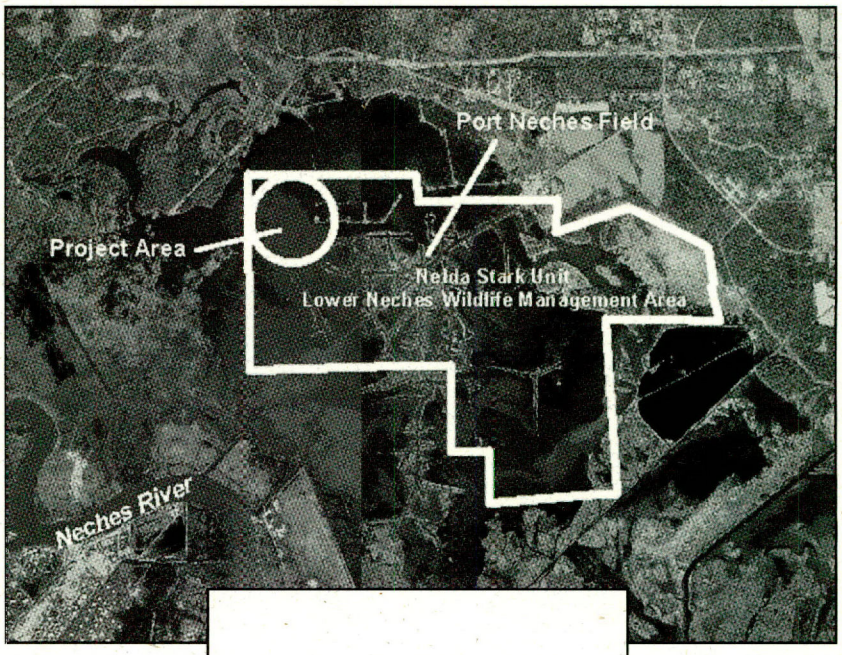
Flash forward in time 80 years to January 29, 2002. On the Nelda Stark Unit, the area commonly known as the Bessie Heights Marsh, you find Jim Sutherlin and Mike Rezsutek of TPWD Wildlife Division, Andy Tirpak of TPWD Resource Protection Division, and Mo Saleh of Professional Engineering and Environmental Consultants, slowly navigating their way through the fog. Under the hull of our boat is approximately 3 feet of water, and no vegetation other than that growing on a few old levees. Our trapper friend of an earlier generation would not recognize the marsh as it is now. These folks are on their way to check on the construction of test terraces designed to give wetland plants a place to grow again. These terraces are the start of what eventually will be restoration of 80-100 acres of the estimated 6,000 acres of habitat lost in the Nelda Stark Unit since the early 1900s.

The Bessie Heights Marsh was likely an intermediate, mostly emergent-marsh system, one in which salts in the water usually didn't exceed more than about 8 parts per thousand. The area received sediment from the Neches River when floodwaters would flow across the marsh and then recede. Historically, storm events originating in the Gulf of Mexico and extremely high tides pushed salt water into the area, but the marsh seems to have weathered these episodic events relatively well. But the marsh is not the same as it was when our trapper friend visited the marsh - several events contributed to the highly degraded condition of the marsh we see today. The Neches River was dredged to twice its original depth near the turn of the century and the dredged material was deposited along the north banks of the river. This action had a two-fold effect: 1) the deeper channel allowed salt water to intrude further up the river than in the past, and 2) sediment delivery and freshwater sheet-flow across the marsh was reduced by the spoil deposits. In addition, the Nelda Stark Unit has been

developed extensively for oil and gas, extraction of which has contributed to marsh loss through subsidence.

Brine disposal within the marsh, particularly in the early periods of oil production, also contributed to wetland loss. Canals associated with development of the oil field allowed salt water to intrude faster and deeper into the marsh, which increased loss of silt and organic matter through erosion and loss of salt-intolerant plants.

Efforts are underway to bring back the marsh and the terracing project is a first step in this process. The white circle in the photograph shows the approximate project area while the white line outlines the boundary of the Nelda Stark Unit of Lower Neches WMA. As you can see, it is now open water habitat with a water depth that averages 3 to 4 feet. The soil is high in organic matter content - soil sampling suggests this organic material may be close to 20 feet thick.



This project will use the soils that are present to form terraces at marsh elevation. To the right is a newly constructed terrace in the Nelda Stark Unit.

After construction, emergent wetland vegetation will be planted on the terraces. The choice of species to be planted will be based upon what exists in the surrounding fringe marsh. A few of our primary goals with this project will be to increase overall primary productivity, promote deposition and retention of suspended sediments, encourage growth of submerged aquatic plants, and reduce turbidity and wind fetch. The increase in plant productivity that will occur will benefit both fisheries and wildlife through providing shelter and a food base. This project is being implemented as part of a larger plan that addresses extensive wetland losses that have occurred within the Bessie Heights Marsh. Being the first restoration project within the marsh, it will be a catalyst for future restoration projects.

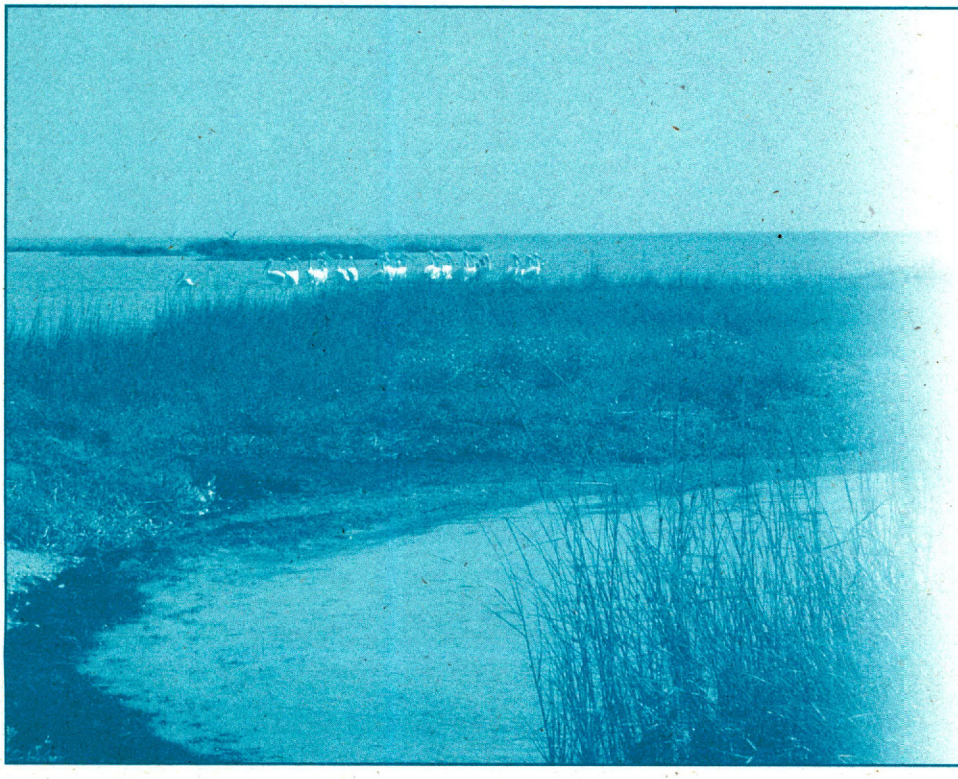
This project will result in an overall net increase of 80-100 acres of estuarine wetlands in the project area. The constructed terraces are expected to require little to no maintenance over the long term, and their presence will provide much marsh-water interface (edge), which is one of the most valuable habitat components for fish species. The value of the restored wetlands to fisheries will be very high, as the terrace layout will allow for fisheries access and water movement throughout the project area. Production of submerged aquatic vegetation, primarily widgeongrass (*Rupia maritima*), in the project area also should increase. Submerged aquatic vegetation such as widgeongrass provides quality habitat for fisheries and excellent food for migratory waterfowl, particularly gadwall (*Anas strepera*), American wigeon (*Anas americana*), and diving ducks (*Aythya* spp.). The restoration effort will take some time, but when completed, Bessie Heights Marsh will once again support an abundance of fish and wildlife. I think our trapper friend would be pleased.

Wetlands Assistance Guide for Landowners Available from TPWD

The Wetlands Assistance Guide for Landowners is a publication available from Texas Parks and Wildlife Department that outlines available federal, state, and private programs offering technical and/or financial assistance to private landowners in the state of Texas. In addition to providing information on sources of assistance, the guide also has general information on wetlands in Texas, and federal and state regulations concerning wetlands.

The guide can be viewed on-line at **www.tpwd.state.tx.us/wetlands/programs/landowner**. If you would like to have a guide mailed to you, please e-mail your name and address to **jennifer.key@tpwd.state.tx.us**.

Goose Island Shoreline Stabilization and Protection of Adjacent Habitats in Aransas Bay Project Receives State, Local and Federal Funding



A project to stabilize an eroding shoreline at Goose Island State Park by the construction of an offshore breakwater has received funding and efforts to evaluate the alternatives and come up with a design are underway. If the results of a geotechnical evaluation support the use of dredged material from a nearby boat channel in shoreline renourishment, then the project would also provide a beneficial use for maintenance dredge material.

Goose Island State Park, located 10 miles north of Rockport in Aransas County, Texas, is comprised of 321 acres on the southern tip of Lamar Peninsula and is bounded by Aransas and St. Charles bays. Goose Island, just south of Lamar Peninsula on the Aransas Bay, has an eroding shoreline of approximately 2 miles. The unprotected shoreline consists of a shell ridge with smooth cordgrass (*Spartina alterniflora*) marsh occurring along portions of it. On the mainland (northern) side of the island, high marsh grades into intertidal smooth cordgrass marsh and tidal flats. The open water on the southern side of the island supports shoal grass (*Halodule wrightii*) and scattered oysters. The portion of the bay between Goose Island and the mainland supports expansive living oyster reefs. The seagrasses, cordgrass marshes, and tidal flats provide important feeding habitat for waterfowl, shorebirds, wading birds, and important nursery areas for commercially and recreationally important finfish and shellfish.

A comparison of 1969 and 1995 aerial photography by Texas Parks and Wildlife Department (TPWD) revealed that 17.1 acres of the island had eroded from the southern shoreline, while 1.5 acres has accreted on the western tip of Goose Island during that time period. The remaining 15 acres of the island behind the eroding southern shoreline are vulnerable to submergence through ongoing erosion forces. The island has breached in one location and, if erosion is not controlled, will breach in more places, jeopardizing approximately 75 acres of marsh and oyster reef habitats in the bay north of the island. In addition, the shoreline of the adjacent mainland would become vulnerable to erosion from the effects of the wind, waves, and large fetch of Aransas Bay should Goose Island become submerged.

This project would stabilize the southern shoreline of Goose Island from further erosion by constructing an offshore breakwater in Aransas Bay. The breakwater would be constructed in a manner that would minimize impacts to existing seagrasses and oysters. The breakwater would dampen wave action between the breakwater and the shoreline, creating a lagoon effect that would allow further development of seagrass beds and intertidal emergent marsh along the shoreline. Once completed, the breakwater would protect the remaining 15 acres of Goose Island and the 75 acres of marsh and oyster reef habitats behind it.

Goose Island, the offshore portion of Goose Island State Park, provides excellent feeding habitat for waterfowl, shorebirds, and wading birds. Over 300 species of birds have been documented using the open bays, shorelines and mudflats, marshes, meadows, and live oak mottes found in Goose Island State Park. Approximately 90% of avian species traveling the Central Flyway

congregate in the Texas coastal bend for the duration of winter and include species such as whooping cranes, sandhill cranes, Canadian and snow geese, teal, pintail, redheads, ruddy ducks, gadwalls, and many others. The area also hosts a number of year round species including white pelicans, brown pelicans, cormorants, mottled ducks, black skimmers, night herons, egrets, herons, ibis, roseate spoonbills, plovers, sandpipers and many others. Many of these species feed on the crustaceans, small fish, and aquatic vegetation available around Goose Island. Perhaps the most popular birds to park visitors are the hummingbirds and the resident and migrating songbirds. Birding opportunities at Goose Island State Park make it a popular destination for tourists during the migration seasons and for winter Texans who stay at the RV facilities on the park.

Goose Island State Park is near Rockport/Fulton, another popular tourist destination, and is very close to the Aransas National Wildlife Refuge, which is the wintering grounds for the endangered whooping crane. The marshes and oyster reefs are valuable habitat for commercially and recreationally important finfish and shellfish. Fishing is a popular activity at the park for both residents and visitors. The breakwater project would protect the valuable habitats that support the flora and fauna that attract visitors to Goose Island State Park and nearby Rockport/Fulton.

The Goose Island Shoreline Stabilization and Protection of Adjacent Habitats in Aransas Bay Project has numerous partners involved who are committed to the project, including the General Land Office, Coastal Bend Bays & Estuaries Program, Aransas County Commissioners, and the Neptune Harbor Canal and Property Owners Association.

Currently, TPWD, the General Land Office, and the Coastal Bend Bays & Estuaries Program are developing a project cooperation agreement to conduct a feasibility study and alternative analysis for the shoreline stabilization options. Once a preferred alternative is selected, environmental permitting will be obtained for the project and a new project agreement with all of the partners will be developed for the construction phase. It is expected that the feasibility study/alternatives analysis phase will be completed this fall. Kay Jenkins - (361) 825-3245 - is the project leader for TPWD, Dennis Rocha - (512) 475-1412 - is the project manager for GLO, and Leo Trevino - (361) 885-6244 - is the project manager for the Coastal Bend Bays & Estuaries Program.

Landowner Associations Preserve Open Spaces, Wildlife Habitat and Future Water Supplies

Matt Wagner, a Ph.D. student studying Urban and Regional Planning at Texas A&M University, is currently researching whether landowner cooperatives could be a policy tool to protect water rights. Wagner is funded in part by Texas Parks and Wildlife Dept. (TPWD) and Texas Water Resource Institute scholarships.

In addition to attending graduate school, Wagner also works as a Wildlife Biologist for TPWD. Wagner's graduate committee is chaired by Ronald Kaiser of the Institute for Renewable Natural Resources and Jon Rodiek of the Urban and Regional Planning Department.

Wagner's graduate studies focus on whether voluntary wildlife management associations (WMAs), or cooperatives, could be a strategy to protect water rights and flows.

In basic terms, the WMA program allows landowners to form cooperatives in order to maintain or enhance wildlife habitats or provide other ecological benefits. Each WMA develops a management plan that states the tasks the association will undertake to improve the environment. Some of the options WMAs can utilize include measures to increase stream flows, brush control to boost water yields, and lessening erosion.

Individual properties under a TPWD management plan may qualify for wildlife management property tax valuation instead of agricultural use. Each county tax appraisal office may allow or deny the approval of wildlife use for properties within its boundaries. To date, more than 4,000 landowners representing more than 1.5 million acres are under some form of WMA.

Wagner is working with the Harvey and Mid Trinity Basin WMAs and other East Texas cooperatives to determine if the sale or lease of groundwater rights based on sustained aquifer yields can help reduce land fragmentation. Wagner wants to determine if WMAs could benefit from voluntarily restricting groundwater pumping within an association's boundary. He then wants to examine the economic benefits that may result if limited groundwater withdrawals could be transferred to their higher-valued uses.

"The problem is that rural lands are becoming increasingly fragmented, and part of the solution is the use of WMAs to keep these habitats intact," Wagner says. "If we can develop policy tools to lend some needed financing to assist these co-ops, we could create some very innovative strategies to preserve open space and wildlife habitat, while providing needed water through a free market system."

For more details contact Wagner at **mwagner@tamu.edu**.

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