

**CHAPTER THREE
NATURAL AND LIVING RESOURCE MANAGEMENT**

CHAPTER OUTLINE

Regulatory Issues

- Protection and management of living resources and habitat
- Protection and management of wetlands
- Management of submerged lands
- Surface and ground water extraction
- Oil and chemical spill response

Federal Legislation

- National Environmental Policy Act
- Executive Order 11514
- Endangered Species Act
- Fish and Wildlife Coordination Act
- Executive Order 11990
- Federal Water Pollution Control Act
- Water Bank Act of 1970
- Federal Farm Bill of 1985
- Emergency Wetlands Resources Act
- Rivers and Harbors Appropriation Act
- Federal Emergency Management Act
- National Flood Insurance Act
- Executive Order 11988
- Coastal Barrier Resources Protection Act
- Marine Plastic Pollution Research and Control Act
- Migratory Bird Hunting and Conservation Stamp Act
- Executive Order 1198

Texas Regulations

- Texas Water Code
- Texas Natural Resources Code
- Open Beaches Act
- Coastal Public Lands Management Act
- Coastal Coordination Act
- Oil and Hazardous Substances Spill Prevention and Control Act
- Texas Agriculture Code

Local Regulations

- Local land use and development regulations

Federal Regulatory Agencies

- Fish and Wildlife Service
- Environmental Protection Agency
- Corps of Engineers
- Soil Conservation Service
- Agricultural Stabilization and Conservation Service
- National Oceanic and Atmospheric Administration
- National Marine Fisheries Service
- Coast Guard
- Federal Emergency Management Agency

Texas Regulatory Agencies

- Texas General Land Office
- Texas Parks and Wildlife Department
- Texas Water Commission
- Texas Department of Agriculture

Local Regulatory Agencies

- Brazoria County
- Drainage Districts
- Brazoria County Flood Control

Local Regulatory Agencies (continued)

Brazosport Water Authority
City of Angleton
City of Danbury
City of Lake Jackson
City of Richwood

Other Local Agencies

Houston-Galveston Area Council

Non-profit entities

Galveston Bay Foundation

EXISTING AND POTENTIAL ENVIRONMENTAL IMPACTS

Natural resource management is the protection, efficient utilization, and regulation of the use of wildlife, habitat, land and water. Examples include wetlands management, sport fishing regulations, and land development requirements.

Christmas Bay remains a largely unaltered habitat for many plant and animal species which no longer exist in other parts of the Galveston Bay system. The Bay and its surroundings provide habitat for migratory birds and are an important fish habitat as well. Christmas Bay contains the most significant remaining stand of sea grass in the Galveston Bay system, making it one of the most productive fish nurseries in the estuary. However, recent research indicates that the current rate of loss of this ecologically valuable aquatic vegetation will also lead to its disappearance from Christmas Bay by the next century.

The Christmas Bay watershed currently contains one endangered species, the Brown Pelican, and several threatened species. Other species found in and around Christmas Bay which are not currently listed as endangered or threatened may become so if the species' main habitats elsewhere are destroyed.

The U.S. Fish and Wildlife Service (FWS) has identified one high-priority wetland which is partially located in the watershed. The area is called Hoskins Mound and is located north and east of the Brazoria National Wildlife Refuge (BNWR). Hoskins Mound will be recommended by FWS for incorporation into the BNWR.

Follet's Island, located between Christmas Bay and the Gulf of Mexico, is designated a coastal barrier unit. This designation prohibits any federally-insured construction. Development is also restricted on the mainland side of Christmas Bay within the BNWR.

Decisions on future park development and additional public land acquisitions will potentially affect the Bay by either encouraging or limiting public access and the level of recreational activity. Examples include the TPWD's proposed Christmas Bay State Park on Follet's

Island and plans by Brazoria County to dredge an extensive boat channel into Christmas Bay from the Brazoria County Boat Ramp on Follet's Island.

There is no apparent near-term pressure for development elsewhere in the watershed, most of which remains largely undeveloped, except for the City of Angleton. (See map of city limit boundaries on page 61.) While there are no expectations of future water quality problems in Christmas Bay, the cleanliness of Bay waters will depend on what occurs upstream in the watershed.

The Gulf Coast Intracoastal Waterway (GIWW) is perhaps the most significant human activity in close proximity to Christmas Bay which directly affects it and other adjacent bays. Spoil berms from the original channel dredging in 1940 still stand as man-made barriers in some parts of the shallow Bay. The 1944 expansion and northward relocation of the Waterway created additional obstacles for natural water flows, especially affecting freshwater inflows into the bays from inland streams. Periodic maintenance dredging of the channel produces dredge spoil for disposal, as would any future widening or deepening of the GIWW. Disposal sites are currently located along the edges of the Waterway, in the general vicinity of Rattlesnake Island, creating potential runoff problems. A channel expansion would potentially represent the greatest environmental impact to the Bay system, but there are no near-term plans for such a project.

During the preparation of this report, the question was raised whether or not designation and acceptance of Christmas Bay into the Texas Coastal Preserve Program requires an Environmental Impact Statement to be done. The Texas Parks and Wildlife Department and the Texas General Land Office are the two state agencies involved with the Coastal Preserve Program. The National Environmental Policy Act does not affect the state. Additionally, no federal permit is required and federal monies will not be used to manage the Preserve. Based on these facts, no Environmental Impact Statement is needed. There could be an EIS required for a project that would impact the Preserve if that project meets the criteria of requiring a federal permit or receiving federal dollars for construction.

LEGISLATIVE SUMMARY

Federal Legislation

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) requires an environmental assessment on any federally funded or permitted project with the potential to impact the natural environment. If potential environmental impacts are ascertained, an Environmental Impact Statement (EIS) must be prepared. The EIS requires documentation of adverse environmental effects, evaluation of alternatives, and an assessment of the relationships between short term uses of the impacted environmental resource as opposed to its long term productivity.

Executive Order 11514, as amended by Executive Order 11991

Executive Order 11514 outlined for federal agencies what their responsibilities would be in implementing the National Environmental Policy Act of 1969. The Order also charged the President's Council on Environmental Quality with leading and monitoring the incorporation of national environmental goals into the routine activities of all federal agencies. Aside from these procedural instructions, the Order called for federal leadership "in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life." By emphasizing broad public disclosure and input, interagency and intergovernmental coordination, and wide-ranging review and reform of federal agency practices, the Order reflected the idealism of NEPA itself. But the Order also pointed out the need for clarity and practicality in environmental matters. Federal agencies must insure that Environmental Impact Statements are useful, concise, to the point, focus on key issues and real alternatives, and do all this with a minimum of paperwork and extraneous data collection. Finally, the Order assigns the Council on Environmental Quality to arbitrate potential conflicts between federal agencies over NEPA implementation.

Endangered Species Act

The Endangered Species Act enables the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) to render a judgement on any activity which will adversely affect an endangered species. This Act also authorizes the development of recovery plans to schedule necessary actions to restore endangered plants and animals to a more secure and stable biological environment.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act provides for natural resource management agencies to have subject matter jurisdiction for other agencies' activities and permits. For example, the FWS would review a dredge and fill permit application for wildlife impacts.

Executive Order 11990

Executive Order 11990 was issued by President Carter to avoid to the extent possible the destruction or modification of wetlands. In general, the order instructs federal agencies to minimize the destruction, loss or degradation of wetlands and to preserve their beneficial uses. The order does not apply to federal permits issued to private parties for activities involving wetlands on non-federal lands.

Federal Water Pollution Control Act (Clean Water Act) and Subsequent Amendments

The Clean Water Act (CWA), Section 404, created the permit program for the discharge of dredged or fill material into navigable waters and adjacent wetlands. This program is administered by the Corps of Engineers with oversight by the Environmental Protection Agency.

Section 401 of the Water Quality Act of 1987 amended the CWA by requiring certification of state agency review of any 404 permit. The Texas Water Commission is the state agency responsible for this certification. The Texas Parks and Wildlife Department (TPWD) and

General Land Office (GLO) are also part of the review process.

Section 320 of the amended Clean Water Act establishes the National Estuary Program (NEP). This section authorized the establishment of the Galveston Bay National Estuary Program and allocated its funding.

Water Bank Act of 1970

The Water Bank Act regulates wetlands under the jurisdiction of the Department of Agriculture's Agricultural Stabilization and Conservation Service, (ASCS) the Department of the Interior, and the local Soil and Water Conservation District (S&WCD).

The Water Bank Act of 1970 mandates the ASCS, SCS, and local agricultural producers to create plans that will maintain wetlands in their natural character.

Under agreement with the landowner, the ASCS designates land to be maintained in the wetland character. The owner is required to develop a conservation plan in cooperation with the local S&WCD.

The ASCS, S&WCD, and the owner then set standards of practice. The ASCS has the authority to enforce provisions of the conservation plan.

Existing and future legislation is coordinated by this Act. Section 404 of the CWA excludes agricultural land from the dredge and fill requirement. The proposed Farm Bill of 1990 is expected to resolve gaps that currently exist for wetlands policy on agricultural land.

Federal Farm Bill of 1985

Also known as the Agricultural Adjustment Act of 1980, this bill was amended and renamed the "Food and Security Act of 1985" (FSA) on December 12, 1985. This Act provides for resource conservation by prohibiting the production of agricultural commodities on highly erodible land and converted wetland. The Secretary of Agriculture consults with the Secretary of the Interior to identify wetlands and ascertain whether land is highly erodible. Regulations are issued by the Secretary of Agriculture.

The Secretary of Agriculture develops and formulates a conservation plan to assist owners and operators of highly erodible crop land. The Secretary is also responsible for establishing ways to improve and conserve soil and water resources on their respective farms or ranches. The Act also provides for the development of other conservation plans which offer technical assistance to property owners and agencies to protect the quality and quantity of subsurface water; reduce the likelihood of flood hazards that may affect water resources; and control the salinity of the nation's agricultural water resources.

The Federal Farmland Protection Policy Act of 1985 is incorporated under Section 1255 of the FSA, and authorizes federal agencies to identify and reduce adverse impacts caused to

farmland, based on specific criteria. These programs should be consistent with the state and local government policies which protect farmland. The criteria is divided into land evaluation and site assessment.

Emergency Wetlands Resources Act

The Emergency Wetlands Resources Act (EWRA) provides for the conservation and protection of the wetlands of the United States in order to maintain the public benefits they provide. EWRA requires the cooperation of federal, state and local governments to realize these goals. For this purpose, the TPWD is responsible for completing a plan for wetlands consistent with the National Wetlands Priority Conservation Plan.

Rivers and Harbors Appropriation Act

The Rivers and Harbors Appropriation Act gives the Corps of Engineers the authority to regulate any type of work in navigable waters of the United States. The primary purpose of this legislation is to protect navigable waters from obstruction or alteration. However, activities permitted under this act may require review under NEPA, Endangered Species, or Fish and Wildlife Coordination.

Federal Emergency Management Act

This Act, which established the Federal Emergency Management Agency (FEMA), provides for floodplain management and the protection of wetlands. This Act provides guidance to states and localities to minimize the destruction, loss, or degradation of wetlands, as well as to restore and preserve the beneficial attributes of floodplains.

The National Flood Insurance Act

The Act makes available flood insurance coverage for citizens of the United States through coordinated efforts of federal, state and local governments. This law was enacted in an effort to alleviate the financial burden placed on the private insurance industry to provide such coverage. Its impact on natural and living resource management pertains to restrictions which must be placed on development in flood-prone areas in order for communities to participate in the program.

Executive Order 11988

Executive Order 11988 was also issued by President Carter to minimize adverse impacts associated with the occupancy and modification of floodplains. In general, the order instructs federal agencies to reduce the risk of flood loss, to minimize the impact of floods on human health, safety and welfare, and to protect the beneficial uses of floodplains. Under this order, federal agencies are to consider alternatives to their proposed actions or to actions allowed by the agency in a floodplain.

Coastal Barrier Resources Protection Act

The Coastal Barrier Resources Protection Act (CBRPA) designates barrier islands or portions as coastal barrier units for purposes of protecting the land from development which might promote erosion of the island. With this designation, the land uses are controlled so

no construction can occur which requires any type of federal funding. Examples include government insured mortgage loans, loans from institutions backed by government insured agencies and federal flood insurance. The Act functions similarly to FEMA and is implemented by FEMA and local authorities.

Other

The Marine Plastic Pollution Research and Control Act (MPPRCA) determines the regulations for disposal of marine debris. The Migratory Bird Hunting and Conservation Stamp Act (MBHCSA) requires the acquisition of a stamp or permit for the hunting of migrating birds. The MBHCSA also seeks to maintain the conservation of certain species of migrating birds.

Executive Order 11989 was issued by President Carter in 1977 to clarify the authority of federal agency heads to regulate the use of off-road vehicles on public lands under their purview. When off-road vehicles are found to be causing "considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources" of certain public areas or trails, agency heads are authorized to immediately close such areas to off-road vehicles. These closings may continue until adequate mitigation steps have been taken and prevention of renewed damage is assured. Relevant federal agencies are also empowered to identify those public lands which are not suitable for off-road vehicle use at any time and which will remain closed to such use under adopted agency policy.

Texas Legislation and Regulations

Texas Water Code

The Texas Water Code encompasses a number of natural resource management issues. Under the code, the TPWD and the Texas Water Development Board have responsibility, in cooperation with other agencies, to establish and maintain a continuous bay and estuary data collection and evaluation program. This program includes studies and analyses to determine the bay conditions necessary to support a sound ecological environment.

The Water Code also establishes the permitting program for surface water extraction and provides for flood insurance and floodplain management, as set forth under the provisions of the National Flood Insurance Act.

Texas Natural Resources Code

The Texas Natural Resources Code governs the GLO's management of submerged lands, as well as coastal wetlands. The Natural Resources Code also governs oil and gas extraction activities, and also provides for the protection of certain manmade resources, such as archaeological sites.

Open Beaches Act

The Natural Resources Code states that the public will be permitted to enter the

state-owned beaches "bordering on the seaward shore of the Gulf of Mexico . . . or to the larger area extending from the line of mean low tide to the line of vegetation bordering on the Gulf of Mexico."

The access to public beaches section of the Texas Natural Resources Code prohibits any person from constructing an obstruction which interferes with any individual's access to that public beach area.

The Open Beaches Act gives the Attorney General's Office (AGO) control of the coastal side of barrier islands. The AGO takes an active role in the protection of public access to beaches.

The Coastal Public Lands Management Act

The Coastal Public Lands Management Act (CPLMA) seeks to preserve the natural resources of coastal public land through management programs. The CPLMA designated the GLO as the lead agency over a management program for developing future objectives, policies, and standards for planning and regulating the use of coastal public land resources.

The Coastal Coordination Act

The Coastal Coordination Act was to provide for a more effective and efficient use of public funds and facilities in coastal resource areas by making the state's existing coastal management processes more visible and accessible to the public. Studies of coastal problems and issues were to be addressed by a council which was created under this Act, but that is presently inactive.

Texas Oil and Hazardous Substances Spill Prevention and Control Act

The Texas Oil and Hazardous Substances Spill Prevention and Control Act establishes the Texas Water Commission (TWC) as the state's lead agency in spill response and authorizes the TWC to issue any rules necessary to fulfill the Act's requirements. The Act also creates a Regional Response Team of federal and state agencies to devote personnel and equipment to be utilized for spill clean-up. However, coordination problems in recent spills in Galveston Bay have raised concerns on the present method for spill response. At least two bills creating new response systems are expected to be presented in the 1991 legislative session.

Texas Agriculture Code

Under the Texas Agriculture Code, the Texas Pesticide Control Act and the Texas Herbicide Law assign extensive authority to the Texas Department of Agriculture (TDA) to undertake comprehensive regulation of all aspects of agricultural chemicals in the state. This includes the labeling, registration, licensing, transportation, handling, display, sale, distribution, use and application, and storage and disposal of all pesticides and specified herbicides. The TDA's rules and regulations include record-keeping requirements and standards to be followed in chemical application. While the Herbicide Law provides for misdemeanor fines and the possibility of a short jail term for violations, the Pesticide Act imposes more rigid

penalties for the most serious violations. At the extreme, any person who knowingly or intentionally mishandles pesticides, resulting in "injury to man, vegetation, crops, livestock, wildlife, or pollinating insects," will be charged with a felony upon a second violation if previously convicted under the Texas Pesticide Control Act.

Local Ordinances

Few local controls exist which provide for or were intended for natural resource management. Local ordinances such as zoning, subdivision controls and building codes could possibly be employed to protect valuable habitats or other sensitive areas. However, there are few examples in Texas of local development regulations being used to address living resource issues.

FEDERAL REGULATORY AGENCIES

U.S. Fish and Wildlife Service

The U.S. Department of Interior's Fish & Wildlife Service (FWS) is the agency charged with protecting and conserving fishes, wildlife (birds and most mammals), and their habitats for the benefit of the public. This agency manages the taking of migratory game birds and conducts monitoring and research associated with changes in fish and wildlife populations. Examples of FWS research include surveillance of the effects of pesticides, heavy metals and thermal pollution.

The FWS is also a reviewing agency for Environmental Impact Statements and federal permits. The FWS alone cannot stop a particular action, but it is considered powerful in light of the fact that it can require further review of a project's impacts on wildlife. The review and comment authority of the FWS encompasses a range of federal permitting agencies. Under the Endangered Species Act, the FWS has the authority to render a finding as to the harm that an activity may cause an endangered species and can also take legal action against those parties who threaten endangered species and critical habitats. The FWS provides the same consultations under Section 7 of the Act, which requires that all federal agencies consult with the Department of the Interior on endangered species and critical habitat issues arising from federally-sponsored or permitted projects.

The FWS is also part of the multi-agency Regional Response Team to deal with oil spills. In this capacity, the FWS works to protect, clean up and mitigate impacts to wildlife and provides technical assistance to the lead agency, generally the Coast Guard or EPA.

Wetlands

The FWS has completed the National Wetlands Priority Plan, which provides guidance for identifying the more important, scarce, or vulnerable wetlands. The Priority Plan, as mandated by the EWRA, also required FWS regional offices to create concept plans that address local and site-specific actions. In 1989 the Region II Wetlands Regional Concept Plan was completed. The concept plan included a list of areas in Texas to receive priority consideration for federal and state Land and Water Conservation Funds. One area within the Christmas Bay watershed, the 32,000-acre Hoskins Mound area, was identified as a high-priority wetlands site for possible acquisition. The FWS concluded that the wetland functions of Hoskins Mound are threatened by overgrazing and oil, gas, mineral and commercial development.

Brazoria National Wildlife Refuge

The U.S. Fish and Wildlife Service manages 12,199 acres adjoining the northwestern shore of Christmas Bay as the Brazoria National Wildlife Refuge (BNWR). The purposes of the refuge include the provision of a quality wintering waterfowl habitat, a diversity of other wildlife habitats, and the enjoyment of the wildlife resources by the general public. The refuge is involved in such land management programs as water management, controlled burning, grazing, public hunting and fishing and wildlife interpretation. An expansion of the BNWR land is being recommended by the FWS that will include land to the northeast called Hoskins Mound. As mentioned in the previous section, Hoskins Mound has been identified by the FWS as a threatened wetlands area.

The BNWR is also involved in the enforcement of the Migratory Bird Treaty Act (waterfowl hunting regulations) and the Endangered Species Act.

There is considerable monitoring of wildlife within the BNWR. Also monitored to a limited extent are the migratory bird and endangered species activities in the surrounding area. For example, an annual census is conducted of the colonial waterbirds using rookeries in Drum, Bastrop, Christmas, Chocolate and West Bays.

U.S. Environmental Protection Agency

The Environmental Protection Agency (EPA) is also a lead agency in wetlands management. Under Section 404 of the Clean Water Act, EPA is required to prepare guidelines in conjunction with the Corps of Engineers to use in issuing permits for the disposal of dredge and fill materials into navigable waters and adjacent wetlands. EPA has oversight authority for administering the permit program as well as enforcement authority. If a determination is made that a discharge of dredge and fill material will adversely affect municipal water supplies, wildlife, recreation areas, or shellfish beds and fishery areas, EPA may prohibit the use of a specific disposal site.

EPA has adopted the goal of the National Wetlands Policy Forum to achieve no net loss of the nation's remaining wetland base. EPA has responsibility for wetland management planning through the Advanced Identification Process. This process establishes a plan for specific areas relative to their wetlands characteristics. The characteristics are assessed and the functional attributes are detailed. The process is used to streamline the permitting process in designated areas and to safeguard pristine areas.

EPA is also a member of the Regional Response Team for oil spills. The U.S. Coast Guard directs response operations in tidal waters and EPA directs clean-up operations in non-tidal waters.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (Corps) is authorized under Section 404 of the Clean Water Act to issue and enforce permits for discharge of dredge and fill materials into navigable waters and adjacent wetlands. Permits are issued under guidelines jointly developed with EPA. Comments on Section 404 permits are provided to the Corps by the U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service under the Fish and Wildlife Coordination Act, and by the Texas Water Commission, Texas Parks and Wildlife Department, and General Land Office, under Section 401 of the Water Quality Act.

The Corps has the responsibility for determination of wetlands. Determinations are typically made upon request by property owners or individuals interested in purchasing property where a wetland designation may be an issue. State or local entities can also request determination. The Corps has an informal agreement with the FWS by which the Corps will invite FWS to participate in wetland determination.

The Corps has authority under the Rivers and Harbors Act to regulate any type of work in navigable waters. Examples include Corps review of permits for the construction of discharge pipes or piers to determine the impact of the construction on the waterway and adjacent wetlands.

The Corps studies and makes recommendations on proposed channel expansions along the Gulf Intracoastal Waterway (GIWW), in addition to routine maintenance dredging of the channel. The Galveston District of the Corps has not recommended any near-term expansions of local channel segments, citing a lack of interest from the State of Texas. However, Congress has authorized an expansion of the GIWW from the Sabine River to Galveston, where the Waterway is under the jurisdiction of the Corps' New Orleans District. This portion of the GIWW will be enlarged to 16-foot depth and 150-foot width from the current 12-foot depth and 125-foot width, which are the same existing dimensions of the Bastrop Bay-to-Freeport Harbor segment.

Soil Conservation Service

The United States Department of Agriculture Soil Conservation Service (SCS) assists local governments in creating plans for renewable natural resources, including sediment and erosion control, flood control, reclamation area development, and tree preservation. While it has no regulatory or enforcement authority, the SCS will assist local governments in developing management plans, ordinances, policies or regulations. The SCS is also responsible for the mapping and designation of wetlands on agricultural lands, and it inspects those farmers who have completed a wetland conservation plan.

Agriculture Stabilization and Conservation Service

The United State Department of Agriculture's Agriculture Stabilization and Conservation Service (ASCS) received authority to regulate wetlands, in cooperation with the EPA and local Soil and Water Conservation Districts, in the Water Bank Act of 1970. The Water Bank Act of 1970 mandates the ASCS, SCS and local agricultural producers to create plans that will maintain wetlands in their natural character. The "swampbuster" provisions of the 1985 Federal Farm Bill denied federal assistance to farmers who produced agricultural products on converted-wetland farms. This gave the ASCS and SCS authority to require compliance with wetland preservation and conservation plan provisions.

National Oceanic and Atmospheric Administration

The National Oceanic and Atmospheric Administration (NOAA) is part of the United States Department of Commerce. The NOAA is responsible for gathering, processing and issuing information on weather conditions, river water weight, coastal tides, and current movement of oceans. In addition, the NOAA issues warnings for tornadoes, floods and seismic seawaves. The NOAA provides current environmental data, ocean surveys and measurements, and technical research publications dealing with earth sciences.

National Marine Fisheries Service

The National Marine Fisheries Service (NMFS), which is part of the NOAA, regulates fisheries management, primarily of offshore species. The NMFS has advisory status under the Fish and Wildlife Coordination Act and National Environmental Policy Act for federal construction or permits in the waters of the United States.

The Endangered Species Act requires the FWS and NMFS to determine if any proposed federal action will have an adverse effect on a threatened or endangered species. The judgment is generally made in consultation between the FWS, NMFS, and the sponsoring agency. Projects which exhibit possible negative impacts on the threatened or endangered species will not receive a federal permit or federal funds.

U.S. Coast Guard

The Coast Guard is a branch of the Department of Transportation. The Coast Guard supervises boating safety and emergency response to spill contamination within the navigable waters of the Christmas Bay watershed.

The Coast Guard is the implementing agency for a national contingency plan for oil spill response in tidal waters (EPA directs clean-up in non-tidal waters). As the lead agency, the Coast Guard directs a Regional Response Team, which includes federal agencies such as EPA, FWS, NMFS and the Corps of Engineers. If a spill has public health implications, the Center for Disease Control in Atlanta is requested to join the team. State agencies are represented on the response team by the Texas Water Commission.

As the lead agency and first point of contact, the Coast Guard directs and approves all actions pertaining to clean-up operations. The current spill response policy requires responsible parties to contact clean-up operators to work under the direction of the Coast Guard, while the Regional Response Team approves major actions and provides technical assistance. The Coast Guard has a Marine Safety Office located at the Port of Houston, which houses a strike team. The team's responsibility is to quickly reach the spill site and direct on-site clean-up operations.

In addition to spill response oversight, the Coast Guard enforces marine debris regulations. Marine debris may be reported by the perpetrator or the public, or may be observed by the Coast Guard. Penalties and regulations are defined under RCRA, CERCLA or the MPPRCA.

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) is the lead policy and coordination agency for disaster planning and relief. Through the National Flood Insurance Program, FEMA works with communities to regulate land uses in flood-prone areas. Because of flood plain impacts, FEMA also reviews actions that deal with dredging, shoreline erosion, coastal land use, and wetlands. FEMA is primarily known for its assistance efforts after hurricanes or floods. However, FEMA also offers relocation assistance after industrial disasters.

TEXAS REGULATORY AGENCIES

Texas General Land Office

The Texas Coastal Public Lands Management Act assigned management responsibilities for coastal public lands to the Texas General Land Office (GLO). The Act also authorized the

GLO to issue easements and leases for uses of state-owned submerged lands. The GLO also has regulatory control over stream bottoms and natural resources on coastal public lands and controls all activities which may have an impact on them, including dredging, oil and gas recovery, and shoreline erosion.

Activities such as construction of piers, placement of pipelines, dredging of channels, and mineral exploration activities on state land require prior authorization from the GLO and payment of the appropriate fees. Revenue generated by GLO permits, easements and leases is placed in the Texas Permanent School Fund, administered by the School Land Board.

When an application for the use of state lands is received, the GLO conducts an environmental review to determine if the proposed work is an appropriate use of state resources. The review includes assessment of possible alternatives that would minimize adverse environmental impacts. The application is then presented to the School Land Board, and, if approved, a contract between the applicant and General Land Office is prepared.

These contracts typically contain provisions to protect natural resources on state lands and mitigation in instance where environmental damage is unavoidable. For the most part, mitigation is viewed as a last resort, in that it generally occurs after damage has been done.

The map on page 56 shows the approximate boundaries of state-owned lands in the Christmas Bay watershed. The GLO monitors activities in the watershed to prevent unauthorized uses of state-owned lands, and issues permits for activities as discussed above. The Surveying Division of the GLO has prepared maps showing the limits of state ownership in the Christmas Bay watershed, and GLO also maintains maps showing natural resources on state lands, such as oyster reefs, bird rookeries, pipeline crossings, biologic assemblages, and wetlands.

Submerged Lands Management

The GLO submerged land management program includes coordination with other agencies to track Corps of Engineers permits and to be consistent with other agencies' environmental policies in its actions. One such example is coordination with the TWC in its evaluation of water quality impacts of dredge and fill disposal projects (Clean Water Act section 401 program). The GLO recently received a grant from EPA for wetlands coordination with the TWC. It is hoped that this project will lead to a Memorandum of Understanding among state agencies on wetlands and perhaps result in the development of joint standards.

Texas Coastal Preserve Program

The Texas Legislature has specifically provided for the GLO to lease appropriate coastal lands to the Parks & Wildlife Department (TPWD) to be managed as preserves. The two agencies have established a cooperative effort which allows for the strengths of each to be used to ensure long-range protection, enhancement and public use of coastal resources.

GLO and TPWD have executed a Memorandum of Agreement (MOA) which establishes principles of the program and rules of procedure. The MOA requires that recommendations for Coastal Preserve areas be presented to both the Parks and Wildlife Commission and the School Land Board for inclusion in the program.

Recognizing diverse coastal natural resources and broad public concerns, the preserve program has been developed to accomplish four primary goals:

1. Protect fragile biological communities, including important colonial bird nesting sites.
2. Protect unique coastal areas.
3. Explore methods for recognizing preservation, enhancement, and appropriate public use opportunities.
4. Actively involve all concerned and knowledgeable persons and organizations.

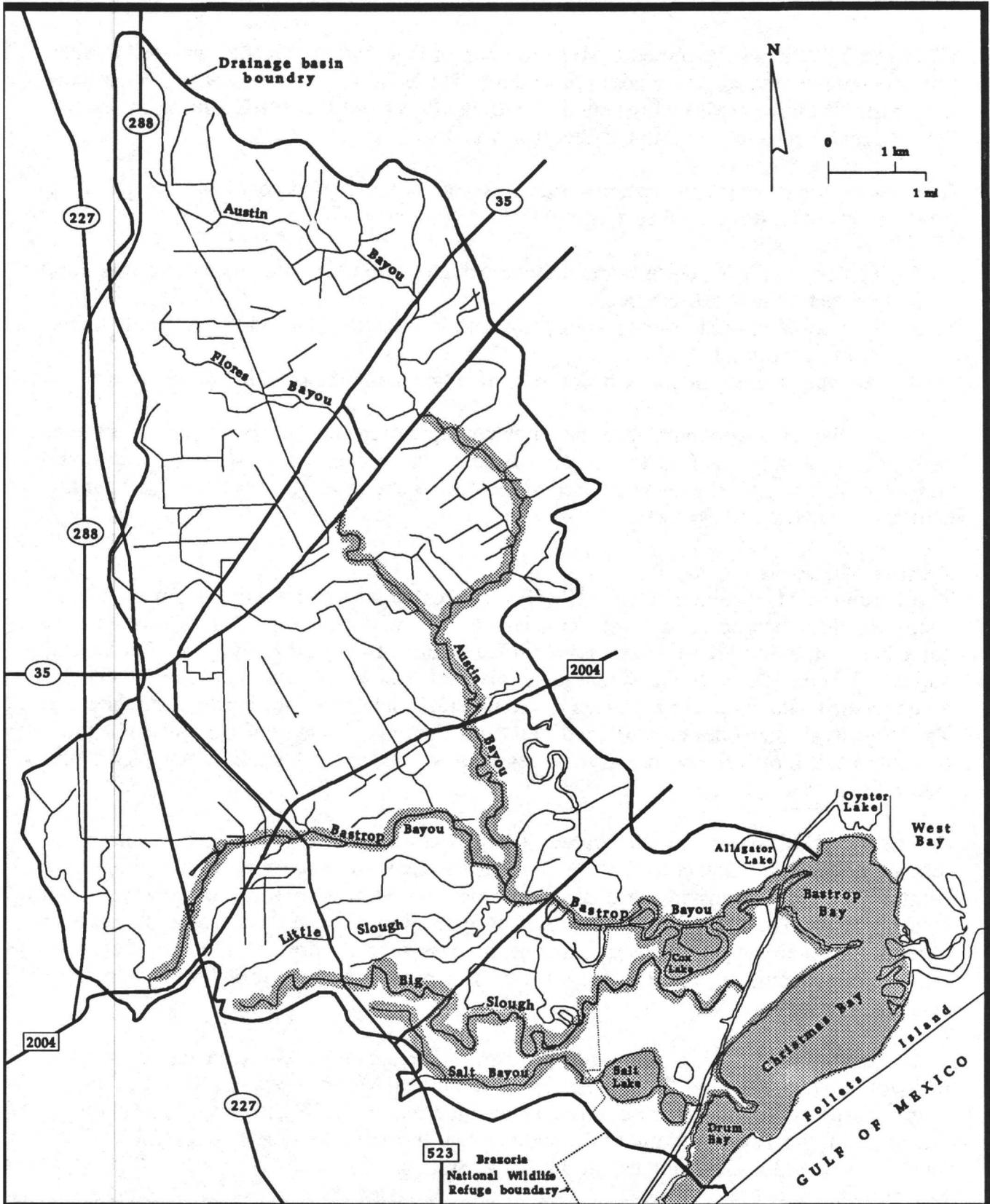
Christmas Bay and Armand Bayou, two highly unique areas of the Galveston Bay system, have been designated as Coastal Preserve Areas. This regulatory study, along with other studies which are underway, will be used in the development of a management plan for the Christmas Bay Coastal Preserve.

Resource Management Code

The Resource Management Code (RMC) was created to assist anyone planning to use state-owned submerged lands of the Texas Gulf Coast. Each code represents a development guideline submitted to the General Land Office by one of the participating state or federal regulatory agencies, with the intent of explaining how development of a tract can be accomplished without causing damage to the natural biologic resources present in the area. The majority of the codes are designed to protect the biologically sensitive areas, but some promote navigational safety, preserve recreational values, and safeguard archaeological and cultural features.

Before the RMC system was instituted, it was necessary for a prospective developer of submerged lands to contact each state and federal regulatory agency with jurisdiction over coastal submerged lands to learn of environmental concerns in the project area. This typically resulted in a coordination process lasting from three to nine months and consisting of numerous meetings in offices throughout the coastal area, various letters of agreement, and several trips to and from the project site. This process became prohibitively expensive and time-consuming.

To devise a solution to the coordination problem, representatives of the oil and gas industry met with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Army Corps of Engineers, and three state agencies -- the Texas Parks and Wildlife Department, the Texas Antiquities Committee, and the Texas General Land Office. These meetings resulted in development of the RMC System.



Christmas Bay Watershed
Houston-Galveston Area Council

General Land Office: State Owned Stream Beds

- State Highway
- County Road
- Streets and Highways
- Waterways

current as of 7/90

Information contained in the RMC database represents the combined expertise of aquatic and wildlife biologists, archaeologists, and engineers from each of the participating agencies. Each of the more than 6,000 state-owned submerged mineral tracts was reviewed by agency representatives who examined the characteristics of each tract and assigned one or more codes which would adequately represent their development concerns. They were assisted in this review by an Industry Advisory Committee which provided comments on the code definitions and code assignments from the user's perspective.

If the RMC information is utilized early in a developer's planning effort, it will minimize state and federal permitting delays and thereby reduce overall development costs. The intention of the RMC System is not to restrict development on submerged lands, but rather to alert prospective developers to the need for precautionary development methods and/or avoidance of areas where sensitive resources are located. If a developer can demonstrate to the satisfaction of the regulatory agencies that sensitive resources on a tract will not be damaged by the proposed work, the on-tract development can proceed unhindered in most cases. If damage to natural resources is found to be unavoidable, development may still be possible if an acceptable mitigation plan can be agreed upon with the regulatory agencies.

Submerged lands of the Texas Gulf Coast are dynamic in nature and are constantly altered by both natural processes and human activities. The participating agencies continue to monitor submerged lands and update the codes as needed to reflect the best information available.

Recreational Cabins

The GLO manages a recreational cabin program in the coastal bays and wetlands under state ownership. The program was authorized by the Coastal Public Lands Management Act (CPLMA) of 1973. There are 612 cabins in the Christmas Bay watershed, and no additional cabins have been added since the CPLMA's passage in 1973. These cabins generally do not have sanitary facilities, and concerns have been raised about the disposal of wastes by cabin occupants. The GLO currently does not control or monitor cabin waste disposal, but it is in the process of developing such a policy.

Texas Parks and Wildlife Department

The TPWD manages the state's fish, wildlife, and wetland resources. A statewide systems of parks, preserves, and wildlife management areas is supervised by the Department. Under the Texas Coastal Preserve Program described above, the TPWD also manages certain state coastal lands leased to it by the General Land Office. The TPWD reviews and comments on any federal project that has the potential to affect these resources.

The disturbance or taking of streambed material on state-owned lands is regulated by the Department. The TPWD also monitors fish and shellfish populations, fishery harvests, bay

and estuarine resources, and dredge disposal. The TPWD sets policy and makes project review determinations based on the results of this monitoring.

The TPWD Enforcement Division regulates the taking of fish, shellfish, and wildlife. These regulations are enforced by game wardens, who are commissioned peace officers. The TPWD conducts research and assists in improving management practices for water resources and wetlands, as well as for uplands. These programs are intended to protect and enhance wildlife resources.

Wetlands

The TPWD also has a significant management role over wetlands and is the state agency designated to comment on federal Section 404 permits. Under the EWRA, the TPWD is required to complete a plan for wetlands that is consistent with the *National Wetlands Priority Conservation Plan*, in order to receive federal land and water conservation funds. The TPWD completed the *Texas Wetlands Plan: Addendum to the 1985 Texas Outdoor Recreation Plan* in 1988. The plan included guidelines for management, policy, regulations, acquisition, information, funding, and education guidelines. It also covered the status and trends in wetlands management, but it did not include a priority list for acquisition. However, TPWD worked in conjunction with the FWS to complete the *FWS Region II Wetlands Regional Concept Plan*. As mentioned previously, the concept plan identified the Hoskins Mound area of the Christmas Bay watershed as containing environmentally-significant wetlands worthy of acquisition.

Nursery Area Designation

The TPWD has the legislatively-delegated authority to regulate the Texas shrimp fishery. A key element of this authority is the protection of designated nursery areas. Nursery areas are tributary bays, bayous, inlets, lakes and rivers which are proven as significant growth and development environments for postlarval and juvenile shrimp, not including outside waters, major bays, or bait bays. Christmas Bay is a designated nursery area. Nursery Area designation prohibits shrimping in the bay, except for a twelve-year grace period granted to operators licensed prior to nursery area designation. These operators' licenses in Christmas Bay will terminate in 1991.

Texas Water Commission

The management of natural resources in the Christmas Bay watershed is chiefly the responsibility of the Texas Water Commission (TWC).

Water Rights Permitting

TWC's Water Rights and Uses Division processes and evaluates permit applications to use state surface water. In general, permit applications to withdraw surface water require a study by the TWC to determine if enough water is available. The applicant must also provide notice to downstream water rights holders and publishes notice of the application.

If there is no protest, the permit is presented to the 3-member Texas Water Commission for action. However, if there is a protest, a public hearing date is set by a TWC Hearings Examiner and all parties to the application are notified. The hearing is held to gather information and the examiner prepares a proposal for decision which is presented to the Commission at a regularly scheduled meeting, at which further testimony may be offered.

The TPWD is always a party to these applications and is provided with permit information. (This cooperative arrangement between the TWC and TPWD was formalized by an Interagency Cooperation Contract in 1990.) The TPWD review assists the TWC in determining acceptable low flow conditions to prevent degradation of habitat and water quality by removal of freshwater, which leads to saltwater intrusion.

Dredge and Fill Disposal

The Section 401 Certification Program provides for state agency review and comment on applications for dredge and fill disposal. The TWC is the state agency responsible for administering this program, though the TPWD and the GLO are also involved in the review process.

The Corps of Engineers makes the determination as to whether a section 404 permit is needed for a project. When a 404 permit is required, the Corps issues a joint public notice on behalf of itself and the TWC and requests that the TWC review the application. The TWC review primarily addresses water quality standards. Habitat issues are reviewed by the TPWD and submerged land management issues are reviewed by the GLO.

If there are no comments from state reviewing agencies or the public, the 404 permit application is certified by the TWC and the certification is forwarded to the Corps for final permit action. If there is any concern over a permit application, additional information is sought from the applicant and a site assessment is required. The site assessment typically involves the Corps, the U.S. Fish and Wildlife Service, the TPWD and the GLO.

Spill Response

The TWC is the lead state agency on the Regional Response Team for oil and chemical spills. The TWC directs the Texas Spill Response program and administers the State Spill Response fund, which provides assistance for clean-up costs, particularly for chemical spills. The GLO and the TPWD are also involved in spill response and mitigation strategies.

There are currently several proposals to consolidate spill response activities, either under the TWC, GLO or a local umbrella organization. Among the considerations is the establishment of a crude oil shipping fee which would help to pay for equipment and staff for spill response efforts. It is expected that these proposals will be filed as bills in the next state legislative session.

Texas Department of Agriculture

The Texas Department of Agriculture (TDA) is responsible for regulating pesticides which may have an adverse effect on human health, environmental resources and agriculture. The TDA is also responsible for the regulation of fish farming operations. The TDA regulates these operations so they will not have a negative impact on marine or biological ecosystems. The TDA is also responsible for the regulation of herbicide and pesticide dealers and users. Standards and procedures are set that will protect the environment and adjacent land owners from misuse of herbicides and pesticides.

The TDA requires and issues licenses for applications of pesticides. The EPA regulations governing pesticide use are followed by the TDA. Pesticide/ herbicide permits are required on an annual basis and commercial operators must obtain a specific use permit. The TDA prohibits the sale and use of highly volatile herbicides in Brazoria County.

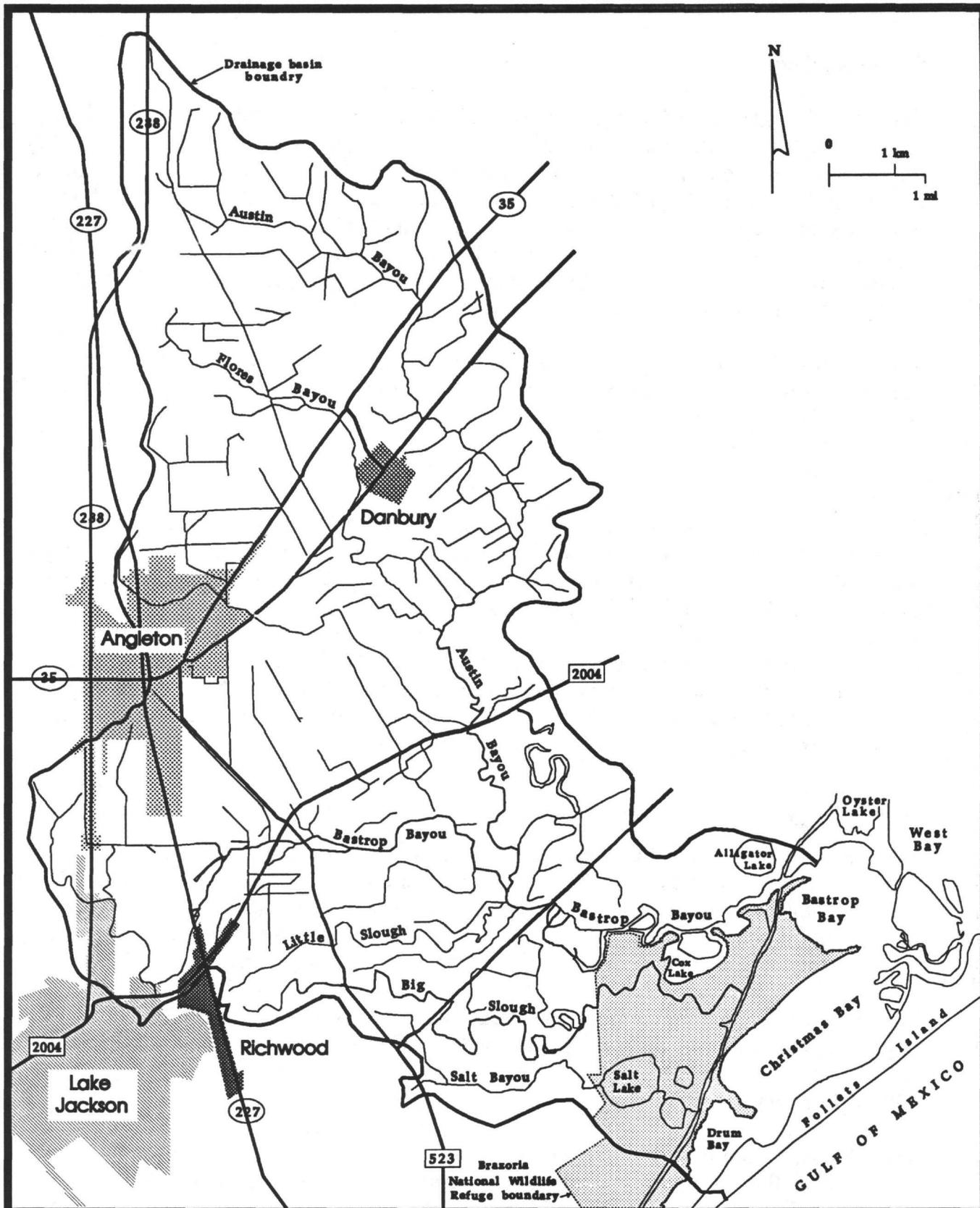
TDA also enforces the pesticide regulations. Periodic compliance monitoring occurs, usually as time and funds allow. Most enforcement occurs on a complaint basis. The TDA will conduct interviews with all parties and issue a determination.

In addition to its agricultural chemicals program, the TDA is also involved in such water resource management areas as water quality standards, hazardous waste regulation, groundwater quality regulation and rural wastewater management. A new Office of Natural Resources has been created within the TDA to address the range of environmental issues related to agriculture. The Office works with farmers, ranchers and rural residents on such topics as farmland protection, rural water quality, water conservation, energy generation and use, stripmining, high-level nuclear waste and hazardous waste disposal. The Office has also focused on the critical water supply and wastewater treatment inadequacies in isolated rural areas of Texas. In response to citizen concerns, the TDA has also initiated pilot studies of pesticide use in rural areas and the possibility of water supply contamination.

LOCAL REGULATORY AGENCIES

Policy governing the protection of wildlife, habitat and water resources is generally set at the federal or state level. However, most conservation programs are to some degree impacted by land development, which is primarily regulated by local governments. While local governments in Texas have not traditionally used development regulations for habitat management, zoning, subdivision and construction-related ordinances are a potential tool for bridging gaps in federal and state programs.

Development in the Christmas Bay watershed is regulated by the City of Angleton, the City of Danbury, the City of Lake Jackson, and the City of Richwood, as well as by Brazoria County. The jurisdictional boundaries of these local governments are shown on the map on page 61.



Christmas Bay Watershed

Houston-Galveston Area Council

City and County Boundaries

NOTE: All unshaded areas are unincorporated

— Streets and Highways □ County Road ○ State Highway — Waterways

City of Angleton

The City of Angleton encompasses approximately 3,500 acres within the watershed. The total population of Angleton is 17,079 (1990 preliminary Census data) and roughly three-quarters of the City is located within the watershed. Angleton encompasses the largest portion of developed area within the watershed. Land uses are largely residential, although the city does have commercial centers and an industrial park. The City of Angleton regulates land use by a zoning ordinance which is supported by policies found in the city's master plan. The comprehensive plan, which is currently being updated, does not contain any specific provisions for natural resources management.

The City also follows regulations of the TWC and FEMA concerning storm water drainage. Subdivisions and development permits require the review of the City of Angleton and the Angleton Drainage District.

City of Lake Jackson

The City of Lake Jackson encompasses approximately 900 acres within the watershed, representing a small portion of the City. Lake Jackson's incorporated area within the watershed is primarily low-density residential or undeveloped. The total population of Lake Jackson is 22,720 (1990 preliminary Census data).

Lake Jackson also uses zoning to regulate land use. The City's general plan is primarily viewed as a guide for the development of vacant properties. Subdivision and building permit applications are required to be reviewed for stormwater drainage. The reviewing agencies include both the City and the Velasco Drainage District.

City of Richwood

The City of Richwood encompasses approximately 170 acres within the watershed, representing about one-third of the city's area. The total population of Richwood is 2,730 (1990 preliminary Census data). Richwood is primarily a residential community. The City of Richwood Code of Ordinances, Ordinance 195, authorizes zoning. The city's general plan provides for the development standards set forth in the zoning ordinance.

Subdivision and building permit applications are required to be reviewed for stormwater drainage. The reviewing agencies include both the City and the Velasco Drainage District.

City of Danbury

The City of Danbury is located on the upper portions of Flores Bayou and is wholly contained in the watershed. Danbury is a rural town with a population of 1,440 (1990 preliminary Census data). The City of Danbury does not regulate land use, other than along state and FEMA guidelines for flood control and drainage. Subdivision applications in

Danbury are reviewed by the Brazoria County Engineer and the Drainage District Commission of Brazoria County Drainage District No. 8.

Brazoria County

Unincorporated portions of Brazoria County comprise approximately 59,000 acres within the Christmas Bay watershed. These lands include most of the Austin Bayou and Flores Bayou watersheds, and the lower watersheds of Bastrop Bayou, Little Slough, Big Slough and Salt Bayou, all of which are primarily agricultural or pristine lands.

Counties in Texas have limited authority to enact land use regulations. As a result, local land use and development can only be managed by those portions of the county which have incorporated or are linked to a nearby municipality through its Extraterritorial Jurisdiction (ETJ).

Drainage Districts

Drainage districts in the Christmas Bay watershed include the Velasco Drainage District, Angleton Drainage District, Iowa Colony Drainage District and Danbury Drainage District. These drainage districts, together with the cities and County, review and approve drainage plans submitted with development plans. Countywide drainage requirements for development are about to be adopted.

Brazoria County Flood Control

The key concern of the Brazoria County Flood Control is the protection of facilities during hurricanes. The agencies look for a levee system that will divert the flood waters from buildings, injection wells, and dredge disposal and waste dump sites. Coordination with state and federal agencies, besides FEMA, is normally along the lines of information gathering. The Corps of Engineers may be consulted to check if a project is located in wetlands and the TWC would be contacted to discuss proposals of levees and disposal wells.

Brazosport Water Authority

Drinking water for most of the cities in the watershed is obtained from surface water reservoirs. These are fed by the Brazos River in the adjacent watershed. The supplier is the Brazosport Water Authority (BWA). The BWA's only regulatory function is water conservation standards. The City of Danbury and various subdivisions in the County receive drinking water from well systems.

OTHER LOCAL AGENCIES

Houston-Galveston Area Council

As mentioned previously, the Houston-Galveston Area Council (H-GAC) is a voluntary association of approximately 150 local governments in the 13-county Gulf Coast area. While H-GAC is not a regulatory entity, it does influence the resource management practices of local governments in the Gulf Coast planning region through its environmental planning and outreach activities. H-GAC also represents the interests of its member governments, provides a public forum on issues of regionwide significance, and promotes regional planning and cooperative solutions to shared problems. Under the Texas Review and Comment System, H-GAC's Project Review Committee and staff have the opportunity to consult on local projects, ranging from wastewater treatment plants to new park development. Finally, H-GAC focuses more closely on a range of regional environmental issues through its various advisory committees and task forces, all of which make recommendations to H-GAC's Natural Resources Advisory Committee.

NON-PROFIT ENTITIES

The Galveston Bay Foundation

The general purpose of the Galveston Bay Foundation (GBF) is to conserve and enhance the Galveston Bay ecosystem. The GBF brings together diverse interests in a forum for the identification and examination of a wide range of issues regarding the Bay system. Activities of the GBF include educating; lobbying; litigating; and encouraging, conducting and/or funding research about the Galveston Bay ecosystem. It is a goal of the GBF to develop a consensus when possible. The GBF is governed by a Board of Trustees. Its committee network addresses various program areas, including permit review and spills.