Chapter Four
WETLANDS PROTECTION

Summary of Findings

1 *Agency staff warn that they cannot be expected to be effective in their wetlands protection efforts without adequate funding support.*

2 *Guidance on nationwide implementation of the "no net loss" concept" is expected soon. In the interim, there is no comprehensive resource policy for wetlands on a par with other types of environmental regulation, which greatly handicaps agency efforts to avert wetland losses.*

3 *State and local governments have essential roles to play in wetlands protection.*

4 *More than most types of environmental regulation, wetlands protection troubles some agency staff because of the fundamental equity issues it raises.*

5 *All of the involved agencies emphasize the need for increased public awareness of wetland functions and value, and of government capabilities (and efforts) to protect these sensitive areas.*

Wetlands protection is a dynamic area of regulation, which forces agencies to monitor the situation carefully and track numerous proposed changes in federal and state conservation strategies. Despite the intense degree of interest in the subject, management agencies still have few tools to work with beyond the Clean Water Act's Section 404 permitting requirement for dredge and fill disposal. Even this provision is now under fire in Congress. EPA Administrator William Reilly noted in recent Congressional testimony that the Section 404 program, while deserving some credit for slowing rates of wetlands loss, has also been "cumbersome and frustrating for the regulated community without necessarily being environmentally effective in protecting wetlands." Officials with the U.S. Army Corps of Engineers also emphasize that Section 404 alone will not allow for implementation of the "no net loss" concept. While the debate continues on how to improve federal conservation mechanisms, regional planning efforts and nationwide wetlands inventories have set the stage for more effective public acquisition strategies. But state agencies are awaiting federal assistance due to their own resource

limitations. Some agency officials emphasize the challenging management task ahead of them once "wet" areas are acquired, especially if publicly-owned wetlands sites are small and scattered.

Numerous agencies now are involved in the wetlands protection issue in some way. For those agencies which do not have direct regulatory powers and are not involved in land acquisition and management, the greatest frustration is not being able to influence independently those actions that potentially could harm valuable wetlands resources.

Action Recommendations

Action: *Armand Bayou's coastal preserve status should be a key consideration in any type of permitting or proposed activity in the Armand Bayou watershed that potentially could affect its wetlands resources.*

Involved Agencies:

- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- Texas Parks and Wildlife Department
- Texas General Land Office
- Texas Water Commission
- Railroad Commission of Texas

Rationale: The involved agencies should determine whether existing procedures for notification of the Texas Parks and Wildlife Department are sufficient to insure that it has an opportunity to communicate coastal preserve management concerns during the permitting process. The coastal preserve management plan should identify general concerns as well as specific environmental constraints that may be encountered in particular areas of the preserve based on surveys of the area's resources.

Action: *Any move at the state level to adopt and implement a "no net loss" policy for wetlands protection must be accompanied by prompt and effective guidance to state agencies and local governments, as well as by careful coordination among them.*

Involved Agencies:

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

Rationale: The "no net loss" concept is still not fully understood even among technical staff of the involved agencies. The Parks and Wildlife Department will need definite guidance on how to implement the policy in coastal preserves. In fact, preserve areas might serve as useful models of the policy's application in targeted protection efforts. The preserve management plan should include some

consideration of the implications of a "no net loss" policy for preserve management. Given the limitations of the preserve area, such a study should examine the degree of dependence between wetlands found within the preserve and those that are part of larger systems beyond the preserve boundary. The Resource Management Code maintained by the General Land Office, along with its internal mitigation policy, should be recognized as a model for advanced assessment procedures, field inventories, impact anticipation, and mitigation planning

Action: *An intensive survey of existing wetlands resources should be undertaken in the Armand Bayou watershed to guide preserve management planning.*

Involved Agencies:

- Texas Parks and Wildlife Department
- U.S. Fish and Wildlife Service
- Texas General Land Office
- U.S. Environmental Protection Agency
- National Oceanic & Atmospheric Administration
- Bureau of Economic Geology (Univ. of Texas)
- other interested agencies and organizations

Rationale: A comprehensive environmental monitoring strategy for the coastal preserve should include methods for tracking variation and change in wetlands resources. But routine monitoring must be preceded by a careful inventory of existing conditions. This effort can pick up where earlier wetlands inventories at Armand Bayou have left off. Preserve areas also might be used to test the long-term effectiveness of various mitigation techniques since monitoring of mitigation projects in the field has proven difficult.

Action: *State agencies responsible for wetlands conservation either must receive sufficient funding to be effective or must receive guidance from the Legislature on where to focus their limited funds.*

Involved Agencies:

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

Rationale: New authority for wetlands protection at the state level must be accompanied by adequate funding for conservation programs. If the state cannot afford an extensive acquisition program of its own, then it should at least support the work of the involved agencies to prepare effective planning documents and protection strategies that will make the state eligible for federal acquisition funds. Establishment of acquisition priorities also will be essential if resources are to remain limited. Adequate resources

for long-term monitoring and enforcement of mitigation plans also should be a concern, especially since staff of the Environmental Protection Agency and Corps of Engineers report inadequate staffing and funds to support federal enforcement functions.

Armand Bayou Management Framework:
WETLANDS PROTECTION

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
CORPS	1. Clean Water Act, Section 404	1. U.S. Congress 2. Code of Federal Regulations: - Corps Final Rules 3. Corps Regulatory Branch, Washington, D.C.: - Regulatory Guidance Letters - Memoranda to the Field	1. Permitting of dredge and fill discharges in"waters of the United States": - review based on EPA-developed 404(b)(1) environmental criteria - public interest review - coordinated resource agency input - general permits and Letters of Permission in some cases 2. Corps/EPA Memoranda of Agreement on jurisdiction, enforcement and mitigation 3. Field monitoring and inspections, with inter-agency assistance 4. Enforcement: - cease and desist orders - compliance investigations - voluntary mitigation agreements - "after-the-fact" permits - administrative orders - administrative penalties - civil and criminal proceedings 5. Wetlands determinations and delineations 6. Technical assistance and expert testimony on wetlands matters	1. Galveston District: - District Engineer - Regulatory Branch (Evaluation Section, Compliance Section) 2. Office of Counsel 3. U.S. Department of Justice

Armand Bayou Management Framework:
WETLANDS PROTECTION

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
EPA	1. Clean Water Act, Section 404	1. U.S. Congress: - statement of national goals and policy in Clean Water Act 2. EPA Administrator: - Code of Federal Regulations - "no net loss" policy 3. Regional Administrator, Region 6	1. Policy support and oversight of Corps Section 404 permit program 2. Development of 404(b)(1) environmental criteria for Corps permit reviews 3. Veto authority over Corps Section 404 permit approvals under certain conditions 4. EPA/Corps Memoranda of Agreement on jurisdiction, enforcement and mitigation 5. Enforcement: - warning letters seeking voluntary compliance - compliance investigations - review of Corps "after-the-fact" permits - administrative orders - administrative penalties - civil and criminal proceedings 6. Advanced Identification studies 7. Joint development with Corps of Federal Manual for wetlands identification and delineation 8. Draft Regional Priority Lists	1. EPA Region 6 (Dallas): - Environmental Services Division (Federal Activities Branch, Technical Section) 2. Office of Wetlands Protection 3. Office of Criminal Investigation 4. U.S. Department of Justice

Armand Bayou Management Framework:
WETLANDS PROTECTION

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
FWS	1. Fish and Wildlife Coordination Act 2. Emergency Wetlands Resources Act	1. U.S. Congress 2. U.S. Department of the Interior 2. FWS Director: - partnership policy for voluntary conservation 3. Southwest Region Director (Region 2, Albuquerque)	1. Resource agency on Corps Section 404 permitting and other federal actions 2. Direct management of wetlands under the National Wildlife Refuge System 3. National Wetlands Priority Conservation Plan and Regional Concept Plans to guide acquisition efforts and suggest management approaches for lower-priority wetlands 4. National Wetlands Inventory and status reports to Congress 5. Joint Ventures to protect wetland habitats under the North American Waterfowl Management Plan 6. Technical assistance and expert testimony on wetlands matters 7. Advisory letters and referrals of violations to regulatory agencies 8. Public education and outreach activities	1. Ecological Services Division 2. Clear Lake Field Office 3. Refuge managers 4. Enforcement agents

Armand Bayou Management Framework:
WETLANDS PROTECTION

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
NMFS	1. Fish and Wildlife Coordination Act 2. Endangered Species Act 3. National Environmental Policy Act (NEPA) 4. Magnuson Fishery Conservation and Management Act 5. Marine Mammal Protection Act 6. Marine Research, Protection and Sanctuaries Act	1. U.S. Congress 2. U.S. Department of Commerce: - National Oceanic and Atmospheric Administration (NOAA) 3. Southeast Region Director	1. Review and comment on federal actions and federally-funded or permitted projects 2. Environmental assessments and EIS reviews, especially to evaluate impacts on endangered and threatened species 3. Monitoring of activities and factors affecting estuaries, fisheries and habitats 4. Tracking of proposed projects, follow-up investigation of permitted actions, and documentation of environmental damage 5. Interagency coordination activities 6. Technical assistance and expert testimony on habitat matters	1. NMFS Southeast Region: - Habitat Conservation Division 2. Galveston Field Branch Office: - Area Supervisor and staff 3. NMFS laboratories (Galveston, TX, and Beaufort, NC)

Armand Bayou Management Framework:
WETLANDS PROTECTION

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
TPWD	1. Texas Parks and Wildlife Code	1. Texas Parks and Wildlife Commission: - Agency policy statement 2. Executive Director 3. Texas Outdoor Recreation Plan (TORP) and Texas Wetlands Plan addenda	1. Lead state resource agency on wetlands matters: - permit reviews (participation in Corps joint reviews) - environmental assessments 2. Texas Wetlands Plan (to keep state eligible for federal land acquisition funds) 3. Direct management of wetlands in state parks, preserves and wildlife management areas (wetlands given high priority in state land acquisition programs) 4. Permits for disturbance or taking of streambed and bay bottom material 5. Management plans for Texas Coastal Preserve program 6. Documentation of environmental damage and use of litigation to seek compensation and mitigation 7. Technical assistance and expert testimony on wetlands matters 8. Inter-agency violation referrals 9. Public education programs	1. Resource Protection Division 2. Wetland Resources Coordinator 3. Texas Natural Heritage Program 4. Seabrook Marine Lab 5. TPWD game wardens

Armand Bayou Management Framework:
WETLANDS PROTECTION

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
GLO	1. Texas Natural Resources Code	1. Texas Natural Resources Code: - statement of public policy 2. School Land Board: - statement of agency policy in Texas Administrative Code - Rules and Regulations 3. Texas Land Commissioner: - agency plans - agency goals	1. Management of state-owned coastal public lands 2. Rules and environmental standards for projects on state-owned land 3. Resource agency on wetlands matters (environmental assessments) 4. Resource Management Code for advance assessment of environmental constraints on state-owned land 5. Texas Coastal Management Plan: - "no net loss" policy for state wetlands protection efforts - wetlands inventories - State Wetlands Conservation Plan, to be prepared by TPWD and GLO - inter-agency agreements - funding and acquisition options 6. Texas Coastal Preserve program 7. Leases of state-owned land for wetlands research 8. Draft Mitigation Policy	1. Resource Management program area: - Coastal Division - Coastal Preserves Coordinator 2. Upper Coast Field Office (La Porte) 3. Office of General Counsel

Management Concern:
WETLANDS PROTECTION

Background

The U.S. Environmental Protection Agency has described wetlands as "the collective term for marshes, swamps, bogs and similar areas that often develop between open water and dry land." The U.S. Fish and Wildlife Service refers to wetlands as the most productive ecosystem in North America. Numerous sources outline the many benefits of wetlands, including:

- filtering of pollutants, which improves water quality
- storage of floodwater, which reduces property damage from severe storms and also contributes to water quality by allowing sediments to settle and pollutants to dilute
- protection of shorelines from erosion by absorbing wave energy, and buffering of coastal population centers from the brunt of tropical storms
- replenishment of groundwater supplies
- propagation of fish and wildlife by serving as a rich habitat, which also supports recreational fishing and hunting and commercial fishing
- promotion of ecological research and education by serving as a natural "laboratory"
- stabilizing influence on climatic change
- protection and buffering of sensitive estuary systems

Wetlands represent less than 5% of the total land area in Texas, but they are critical to the state's environmental quality and "biodiversity." The extensive salt and freshwater marshes along the Texas Gulf Coast provide all of the benefits listed above and also are put to such consumptive uses as cattle grazing. The Fish and Wildlife Service reports that most every endangered species in its Southwest Region either depends on wetlands for its survival or spends some portion of its life cycle there. The threats to wetlands, and the factors behind their rapid loss in this century, reflect the entire range of human activity in urban and rural areas. Some of these factors are:

- alterations of natural hydrology, such as drainage ditches and storm sewers, to protect developed land
- pollution from industry, agriculture, shipping and urban areas

- saltwater intrusion and other impacts of navigational channel dredging, including spoil disposal
- groundwater depletion and land subsidence
- inadequate freshwater inflow due to upstream water supply and flood control projects
- impacts of oil and gas development and power plants
- modified drainage to serve agriculture
- development of recreational dwellings and rural road networks
- general sea level rise and coastal erosion

In general, it is the increased level of human activity in coastal areas that is affecting wetlands and the entire coastal environment. These impacts heighten as land less suitable for development is drawn into use at the fringe of expanding urban areas. (Top officials of the U.S. Army Corps of Engineers pointed out in recent Congressional testimony that delays and difficulty in the wetlands permitting process are increasingly due to the less-than-ideal nature of the land being proposed for development.) One source points out that man has done more to alter wetlands in the last century than nature did over many previous centuries to create them. In its report *Wetlands Losses in the United States, 1780s to 1980s*, the Fish and Wildlife Service estimates that Texas has lost nearly 8.5 million acres of wetlands since colonial times. Only Florida experienced a greater loss at 9.3 million acres. Despite this trend, Texas still ranks among the top four states in wetlands acreage with 7.6 million acres remaining. As wetlands are lost, those that remain gain in value, and numerous public and private interests in the state are intent on preserving this natural heritage and economic resource.

Unfortunately, there is no comprehensive regulatory mechanism for wetlands protection. The Section 404 permitting requirement for dredge and fill disposal under the Clean Water Act helps to limit one obvious impact on wetlands, especially through the Corps' policy of impact avoidance and minimization. In addition, Section 401 of the Act requires that any discharge into state waters to be authorized by a federal permit (such as a Section 404 dredge/fill permit) must be certified by the state as complying with state water quality standards. This certification requirement provides an avenue for states to become involved in wetlands protection. (EPA has instructed state water quality agencies on how to regulate wetlands using their water quality standards. Voluntary state efforts to date will become mandatory in 1993. The Texas Water Commission is preparing to implement EPA's regulatory mandate by including wetlands in the definition of state waters and developing specific standards for wetland areas, including antidegradation policies.) Executive Order 11990, issued by President Carter, instructs federal agencies to avoid to the extent possible the destruction, degradation or modification of wetlands. This order establishes a general wetlands conservation standard for projects on federal land, but the policy does not apply to federally-permitted projects on non-federal lands undertaken by private sponsors.

Critics and agency personnel agree that, under existing law, there is little to stop a landowner from draining or clearing wetlands to prepare them for other land uses. Only under federal agricultural law are there disincentives to persuade landowners not to convert or eliminate wetlands on private property. Outside of Texas, other states and some local governments have begun to develop their own conservation strategies for wetlands, and many have proven effective. Similar programs are being explored in Texas and should be spurred on by the recent passage of coastal protection bills (Senate Bills 1053 and 1054) that require the development of a state conservation plan for state-owned coastal wetlands under a "no overall net loss" policy. In the meantime, the wetlands issue continues to generate confusion, uncertainty, and even controversy.

Nature of the Problem at Armand Bayou

The most significant impact to Armand Bayou's wetland resources has already occurred and is irreversible. This was the combination of land-surface subsidence and rising water levels that progressed over a period of decades. "Drowned" in the process were much of the wetlands that had bordered what was once a narrow stream. The dramatic change in the character, extent, and tidal influence of Armand Bayou has resulted in the loss of more than 90% of the freshwater marsh that previously lined the stream's banks and curves. As reported in the *Environmental Inventory of the Armand Bayou Coastal Preserve*, the bayou had only 24 acres of wetlands remaining by 1979, and most of these were of a different variety than earlier vegetation. There is only limited knowledge of wetland conditions in the area more than a decade later, especially in the remainder of the watershed away from the bayou and its tributaries. What is known is that areas contiguous to Armand Bayou are now flooded intermittently due to the altered stream conditions. The remaining wetlands also are confronted with the poor water quality in the bayou, which tests their ability to weather extreme conditions.

The key management question regarding Armand Bayou is how best to assess the extent and significance of its remaining wetlands, especially in terms of their possible habitat value. Preserve managers then must consider whether the loss of these wetlands also is inevitable or if protective measures are warranted (and would be feasible). Unfortunately, few local preservation options are currently available in Texas aside from direct public acquisition. Nonetheless, it is an opportune time for this type of resource inventory and evaluation since wetland concerns are receiving unprecedented attention in the current state legislative session. The work of the Armand Bayou Nature Center also has helped to raise awareness of local wetland resources and their importance.

Key Management Agencies

U.S. Army Corps of Engineers (Corps)

Section 404 of the Clean Water Act places the Corps of Engineers, along with the U.S. Environmental Protection Agency, at the center of federal wetlands regulation. The

Corps has gradually assumed this type of role as a result of environmental legislation and judicial rulings. The Corps' traditional approach to regulating activities in U.S. waters focused mainly on navigation concerns. But the 404 program goes farther by aiming to protect the nation's waters from indiscriminate discharges of soil, sand, gravel and dredged material capable of causing pollution. The Corps now performs a full "public interest review" of most projects to balance water protection and utilization needs.

The expansive definition of "waters of the United States" as used in the Clean Water Act makes the Section 404 program applicable to proposed actions in wetlands as well as to more obvious open-water projects. Section 10 of the Rivers and Harbors Act of 1899 authorized the Corps to establish a permit program for certain activities in the *navigable waters of the United States*. But the Clean Water Act applies the 404 permit program to *waters of the United States*, which is the navigable waters "plus their tributaries and adjacent wetlands and isolated waters where the use, degradation, or destruction of such waters could affect interstate or foreign commerce." It should be emphasized, however, that the vast majority of wetlands losses -- those resulting from natural processes and agricultural activity -- are not affected in any way by the Section 404 program. As a result, the Section 404 program is considered by some a limited, "back-door" approach to wetlands protection. This has spurred the current efforts in Congress and elsewhere to craft a comprehensive resource policy for wetlands comparable to other areas of environmental regulation.

The Corps of Engineers and EPA jointly administer the Section 404 program, with EPA focusing on policy aspects and the Corps on day-to-day implementation. The Corps' Section 404 permitting authority was established by Congressional amendments to the Federal Water Pollution Control Act in 1972. Section 301 of the Act prohibits the unpermitted discharge of any pollutants into waters of the United States. Section 404 then classifies dredged and fill material as pollutants when they are discharged into U.S. waters.

Activities in the Christmas Bay watershed which fall under the Corps' Section 404 jurisdiction are regulated by the agency's Galveston District. The District is one of five in the Southwestern Engineer Division, which covers all of Texas, New Mexico and Oklahoma and portions of Louisiana, Arkansas, Missouri and Colorado. The Division headquarters is located in Dallas. Each Division and District has an arm of the Corps' nationwide Regulatory Branch. Each Branch within the Corps is comprised of specialized Sections. In the Corps hierarchy, Section Chiefs report to Branch Chiefs, Branch Chiefs to the District Engineer, District Engineers to the Division Engineer, and Division Engineers to the Chief of Engineers in Washington, D.C. The Chief of Engineers manages the entire agency under the direction of the Secretary of the Army. Within the Galveston District's Regulatory Branch, the Evaluation Section processes 404 permit requests, and the Compliance and Special Actions Section monitors the performance of permittees. In cases where a potential applicant is not sure whether he needs a permit, the Evaluation Section make the determination and notifies the individual.

The Secretary of the Army has delegated his permit-issuing authority under Section 404 to the Chief of Engineers, who in turn authorized his Division and District Engineers to manage the 404 program. This delegation of authority reflects a philosophy of decentralized management within the Corps. The top echelons of the agency provide guidance to the divisions and districts and then serve in an oversight capacity as Corps programs are implemented. Corps District staff refer to the Department of the Army regulations (in the Code of Federal Regulations) as their "Bible." Regulatory guidance letters provide additional clarification of agency policy and practices. The Corps leadership also distributes Memoranda to the Field on important topics, such as a recent restatement of Corps policy regarding agricultural activity on prior converted wetlands. Revisions to Corps regulations are developed through formal rule-making procedures, with opportunity for public comment.

With every application it reviews, the Corps considers the following general criteria:

- the relative extent of the public and private need for the proposed activity
- the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed activity, and
- the extent and permanence of the beneficial and/or detrimental effects which the proposed activity is likely to have on the public and private uses to which the area is suited

The Corps also must examine any specific impacts in a wide range of areas, including: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, food and fiber production, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, the needs and welfare of people, and considerations of private ownership. For this formidable task, the Corps relies not only on its own technical staff, but on the entire network of experts in other federal and state agencies. It is important to note that, aside from the Corps, numerous federal and state resource agencies also can influence proposed discharge projects indirectly through their required comments on Corps permit applications. The Texas Water Commission, as the state's lead water quality agency, can have a very direct influence over Corps permits under Section 401 of the Clean Water Act. This section requires that the state certify each permit before it is issued. When the state certifies a permit, that means that the proposed discharge will not undermine state water quality standards and will not cause significant impacts. The Corps may not issue a permit without the state certification unless the state waives the requirement.

In addition to the Corps' normal "public interest" review, the Section 404 program requires that the Corps evaluate a proposed discharge site against the criteria of Section 404(b)(1). These criteria were developed by EPA in consultation with the Corps. The

EPA guidelines attempt to minimize discharge impacts, and they prohibit a discharge when less environmentally damaging, practicable alternatives exist. Even if a project complies with the criteria, the Corps still may deny a permit if the project is found to be contrary to the public interest for any reason. One specific question that the Corps asks when an applicant proposes to alter wetlands is whether the project is dependent on the particular site and cannot feasibly be relocated. The District Engineer also must conduct additional studies in certain situations, such as when endangered species may be affected by a project. (The National Environmental Policy Act provides another means of wetlands protection and impact evaluation through its Environmental Impact Statement and public review requirements for federally-sponsored projects.) The resource agencies which review Corps permit applications often coordinate their evaluations and work toward a unified response. These agencies include EPA, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Texas Parks and Wildlife Department. The Corps must give full consideration to resource agency input, but it may issue a discharge permit over the objections of the other agencies.

The Corps' standard permit is one that is processed through typical review procedures and involves a case-by-case evaluation of proposed activities. This process often includes a Public Notice, an opportunity for a public hearing, and consideration of comments received. Under prescribed circumstances, the District Engineer is authorized to use less time-consuming, alternative methods for approving proposed activities. The more well-known is the "general permit," which has been the subject of criticism from those who prefer to see case-by-case evaluations in most all instances. Under a general permit, formal processing of a permit application may not be needed because the Corps already has authorized certain activities in advance by issuing a nationwide or regional permit to the public at large. However, a Public Notice, an opportunity for public hearing, and decision documentation still must be completed by the staff, and some reporting may be required of the project sponsor. For example, a Corps nationwide permit allows the discharge of dredged and fill materials into lakes less than 10 acres in size, measured to include any adjacent wetlands. The rationale behind general permits is that they cover activities that have been found to involve no significant short-term or cumulative impacts in a particular region or nationwide. However, the permittee still may have to meet certain conditions to qualify for the general permit. The District Engineer also may use a Letter of Permission (LOP) to approve small or routine projects with minor impacts and minimal agency or public objections. LOPs are the fastest alternative to a standard permit because a Public Notice is not required , meaning that the public at large is not notified of the project application.

Listed below are the usual steps for processing a standard individual permit:

1. Optional pre-application consultation
2. Receipt of permit application at District Office
3. Public Notice within 15 days of receiving all information

4. Comment period of 15-30 days, depending on nature of activity
5. Review by Corps, resource agencies, special interest groups and the public (site visit by staff)
6. Consideration of comments received
7. Inter-agency consultation, if necessary
8. Requests for additional information, if necessary
9. Public hearing, if necessary
10. District Engineer issues permit or denies application with statement of reasons

Each application is guided through this process by an assigned project manager. The manager coordinates all of the necessary work and also may negotiate modifications to the project to meet Corps conditions. District Engineers are authorized by the Secretary of the Army to impose any conditions they see fit on an issued permit. The Corps may call a public hearing if any of the comments it receives raise substantial issues which cannot be resolved informally or require additional information. The Corps urges all who are unsure about Corps jurisdiction to contact the District early in project planning to receive a written determination of whether a Corps permit will be needed. This may include a visit to the project site by Corps personnel. To avoid costly delays and ensure regulatory compliance, the Corps also encourages informal pre-application meetings between applicants and Corps staff prior to submission of a permit application, especially on large and more complex projects.

The Corps uses a standard application form for all of its permits. The reason for this is that all proposed activities first must be evaluated to determine which of the regulatory programs they fall under and what type of permit will be needed to authorize the work. Additionally, most applications go through the same basic review process, no matter which type of permit is needed. The application requests information on the proposed activity; its sponsor; its purpose; its location; any nearby waterbodies; adjacent property owners; any other federal, state, interstate or local approvals needed; any provisions for discharge of dredged or fill material; and whether any portion of the project is already in progress or completed. The Corps also requires three types of drawings with each application: a vicinity map, a project plan, and an elevation or cross-section view.

Although there is no formal deadline for Corps decisions on permit applications, it is agency policy to try to approve or deny an application within 60 days. More complex technical or legal situations may require more time, as may controversial cases that generate many more comments for staff review, require close coordination between agencies, and perhaps warrant multiple site visits. In all cases, the Corps takes as much time as it needs to insure that the quality of the review is not compromised. Reviews of applications involving a Public Notice typically are finished within four months, with most requiring only 60 days. A formal Public Notice involves notification of all relevant federal, state and local agencies, adjacent property owners, and the general public. These

groups are given an opportunity for review and comment on the proposal, as well as the chance to request a public hearing on the matter. In comparison, a straightforward Letter of Permission normally takes only 30 days.

The Corps reports that only 3% of all permit requests are denied nationwide. Most disapprovals involve applicants who refuse to change the design, timing or location of the proposed activity in line with Corps recommendations. The sponsors of a disapproved project may redesign their plan and resubmit their application. The Corps often points out regulatory factors for applicants to weigh in the design process, as well as urging consideration of alternatives when conflicts arise. The Corps also suggests ways to eliminate the need for a permit through careful siting of activities near water and minimization of project impacts. The results of 404 reviews are contained in a monthly status report issued by the Corps.

Inter-agency agreements established under Section 404(q) allow the resource agencies to request higher-level review within the Department of the Army of a District Engineer's permit decision. This internal review must be requested within specified time limits and under certain conditions. These conditions include insufficient coordination by the district, the emergence of significant new information, or a perceived need for policy-level review of nationally important issues. The Assistant Secretary of the Army for Civil Works considers these requests. EPA has the authority under Section 404(c) to veto a Corps permit approval under certain conditions. It may invoke this veto authority at any time, even if an application is not pending. The Corps and EPA have signed Memoranda of Agreement on jurisdiction, enforcement and mitigation issues in hopes of minimizing inter-agency disagreements. The MOA on mitigation establishes the following conservation-based sequence:

- analysis of acceptable, practicable alternatives (the applicant must demonstrate that the project is dependent on the site in question and that the sensitive area cannot be avoided)
- reduction of impacts (such as minimization of grading)
- as a last resort, provision of compensating mitigation for unavoidable impacts (possibly by creating, enhancing or developing wetlands on or off the site)

Any member of the public, either an applicant or another interested party having standing, may challenge a Corps permit decision in court. Such cases usually are based on charges that the Corps did not comply with procedural requirements, did not observe 404(b)(1) guidelines, or did not adhere to its own permit regulations. Dissatisfied applicants often must resort to litigation because the Corps regulations do not provide for any form of administrative appeal if an internal review determines that the District Engineer followed all required procedures.

Corps personnel are trained in surveillance and inspection techniques so that they may detect unauthorized activities and permit violations. The Corps is assisted by other monitoring agencies and the public. The District Engineer may issue a cease and desist order if a violation still is in progress. Staff conduct an investigation so that the District Engineer may decide what administrative or legal steps are necessary. The District Engineer also evaluates the need for "expeditious corrective measures" to protect life, property or a significant public resource. Appropriate mitigation steps can be administratively ordered or pursued through legal action. The Corps' consideration of remedies and enforcement measures sometimes is coordinated with state and federal resource agencies.

When enforcement action is necessary, either because of a permit violation or failure to obtain a permit, the Corps prefers to pursue a voluntary, mutually agreeable solution with the alleged violator. In some cases this may include requiring him to restore the disturbed site to its pre-project condition or finance the cost of such work. If the violation is not significant and the activity would have been authorized by the Corps under the appropriate procedures, then the project sponsor may be allowed to apply for an "after-the-fact" permit. The Corps' enforcement strategy is tailored to the seriousness of the violation and the cooperativeness of the project sponsor. Litigation, when necessary, is handled by the Corps' Office of Counsel. Cases also may be referred to EPA to channel through its enforcement mechanisms. The most damaging violations or hostile violators are referred to the U.S. Department of Justice for prosecution. Criminal charges are filed when punitive action and/or deterrence is considered necessary to insure the integrity of the permit program. Civil actions are used to secure site restoration when attempts at voluntary compliance have failed. Penalties for violation of Corps regulations may range from minimum fines to imprisonment in the most extreme cases. The Water Quality Act of 1987 authorized the Corps to assess administrative penalties for violations of issued permits. (EPA assesses penalties for unauthorized discharges of dredged and fill materials.) The District Engineer determines the size of the penalty based on the types of factors mentioned above. The District Engineer also may modify, suspend or revoke permits when necessary.

The Corps responds to written requests for wetlands determinations. The Corps now uses a unified federal method for determinations that is based on a manual developed jointly by the Corps and EPA in 1989, with support from the U.S. Fish and Wildlife Service (FWS) and the U.S. Soil Conservation Service (SCS). Prior to the approval of the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*, each of the various field agencies had its own approach to wetlands determination. The new manual reflects the Corps' "tri-parameter" approach to determinations: the necessary hydric soils, hydrophytic vegetation, and hydrology must be present before federal personnel may conclude that a site contains wetlands. Unlike the previous Corps manual, however, the joint federal manual allows one or more of the parameters to be assumed from the presence of others under certain circumstances. The manual has been through a one-year trial period of use, and the involved agencies are compiling staff comments and suggestions for an expected revision of the manual. The Corps also assists other agencies with determinations, including the FWS, and the SCS on agricultural sites affected by the

Food and Security Act of 1985. After a determination is made, agency staff also may use their skills to delineate the extent of the wetlands. This may be critical to establishing a buffer around the periphery of a wetlands area or in evaluating how much of a parcel is not "wet" and suitable for sensitive development. Finally, staff determine what type of permit, if any, the applicant will need from the Corps.

U.S. Environmental Protection Agency (EPA)

EPA is the lead agency in monitoring nationwide progress toward achieving the Clean Water Act's goals. The overriding goal of the Act is "fishable, swimmable" water, which is to be achieved by restoring and maintaining the chemical, physical and biological integrity of the nation's waters. The inclusion of wetlands as "waters of the United States" is what draws EPA into wetlands protection The maintenance of water quality and other important elements of wetlands is considered an integral part of EPA's mission under the Clean Water Act. The Bush Administration and EPA have adopted the goal of the National Wetlands Policy Forum to work toward "no net loss" of the nation's remaining wetlands.

As discussed in the previous section, the permit program for discharges of dredged and fill materials into the nation's waters is currently the chief federal tool for wetlands protection, despite its limitations. This program is authorized by Section 404 of the Clean Water Act, and the Corps of Engineers and EPA jointly administer it. The aim of the Section 404 permit review process is to minimize the negative environmental impacts of these discharges.

Wetlands protection is primarily the responsibility of EPA's Environmental Services Division, although other parts of the agency may become involved with the issue from time to time. The Federal Activities Branch is part of the Division, and its Technical Assistance Section supervises EPA's 404 work program. The Environmental Services Division of EPA Region 6 is one of four regulatory divisions which report to the Regional Administrator. Region 6 covers Texas, Louisiana, Arkansas, Oklahoma and New Mexico. The Region 6 office is located in Dallas. EPA's ten regional administrators report to the agency's Administrator, based at EPA headquarters in Washington, D.C. The Administrator of EPA and a Deputy Administrator are appointed by the President with the advice and consent of the U.S. Senate.

EPA staff refer to four basic steps in wetlands protection:

1. Definition
2. Inventory
3. Hierarchy of protective measures, and
4. Evaluation

EPA is among the key agencies which assist the Corps of Engineers in determining whether particular sites fall under the federal wetlands definition. (EPA plays more of an

oversight role in many aspects of wetlands regulation compared to field-oriented agencies.) The federal code defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." As mentioned in the discussion of the Corps of Engineers, a joint Corps/EPA federal manual now guides official identification and delineation of wetlands. EPA oversees federal wetlands management planning through its Advanced Identification process. Under this program, EPA conducts intensive surveys and attempts to assess the function and value of particular areas in order to safeguard the most valuable sites more effectively in the permitting process. EPA has drafted Regional Priority Wetlands lists as a result of its field research, and these lists were consulted by the U.S. Fish and Wildlife Service for its own priority planning under the Emergency Wetlands Resources Act.

EPA has identified the following approaches to wetlands protection:

- Acquisition: through fee simple purchase or acquisition of an easement, private or public management entities can directly control wetlands sites as conservation areas, sanctuaries or refuges.
- Economic incentives: tax deductions may be authorized to encourage land sales or donations to conservation groups.
- Economic disincentives: the government may withhold certain benefits that encourage activities disruptive to wetlands. The chief example is the "swampbuster" provisions of the Food and Security Act of 1985 (the 1985 federal farm bill). This Act disqualifies farmers from receiving any Department of Agriculture benefits in a year in which they have cleared and drained wetlands for crop use. Before the passage of this Act, federal farm programs actually were an incentive for wetlands filling since they subsidized the cost of private land conversion.
- Regulation: the existing tools include Section 404 permits, civil and criminal penalties for violations, and possible mitigation requirements to correct violations. (Federally-sponsored projects which potentially impact wetlands are affected by the National Environmental Policy Act, which requires the development and review of Environmental Impact Statements to assess the significance of identified impacts.)
- Private options: these include citizen involvement in and support of private conservation initiatives; use of best management practices and sensitive project design

on privately-owned land containing wetlands; private open space planning, purchases and donations, and citizen participation in the Section 404 permit review process.

Section 404 authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for dredge/fill discharges at specified disposal sites. It requires the EPA Administrator to prepare guidelines in conjunction with the Secretary of the Army for use in issuing permits. The Secretary of the Army may override the EPA guidelines should there be adverse economic impacts on the site. The EPA Administrator may prohibit the use of a disposal site if he determines that a discharge will adversely affect municipal water supplies, wildlife, recreation areas, or shellfish beds and fishery areas. District Engineers may issues general permits for dredge/fill discharges. EPA's response to the Corps of Engineers on 404 permit reviews is coordinated with those of the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Texas Parks and Wildlife Department. The Corps of Engineers must give full consideration to resource agency input, but it may issue a discharge permit over the objections of the other agencies. EPA Region offices that wish to appeal a Corps decision must communicate their complaint to EPA headquarters according to the procedure outlined in Section 404(q). EPA may veto a Corps permit approval under certain conditions outlined in Section 404(c). It may invoke this veto authority at any time, even if an application is not pending.

The Clean Water Act authorizes EPA to take appropriate enforcement action to assure Section 404 compliance, including any necessary information-gathering to establish the need for intervention. EPA's first response to a wetlands violation is an informal warning letter which summarizes the 404 program and seeks voluntary compliance. Section 308 allows EPA to require the submission of information by a suspected violator. Failure to respond to an EPA information request can result in additional penalties. If necessary, EPA may issue an administrative order to require that a discharger cease an ongoing violation or refrain from committing future violations. Amendments to the Clean Water Act in 1987 gave EPA authority to assess administrative penalties for unauthorized discharges of dredged and fill materials. (The Corps of Engineers assesses penalties for violations of the conditions of an issued permit.) Penalties for minor violations may not exceed $25,000, while major penalties may total up to $125,000. In either case, the daily penalty during the time that a violation continues may not surpass $10,000. Violations which are beyond the scope of EPA's administrative remedies are referred to the U.S. Department of Justice for civil litigation. The Office of Criminal Investigation handles those cases which warrant criminal charges.

In addition to these direct enforcement measures, EPA also plays its usual oversight role should the Corps choose to consider an "after the fact" permit for an unauthorized action. EPA can recommend that the Corps issue a permit subject to project modification, issue one subject to partial site restoration, or deny a permit and order complete restoration of the site. If an EPA office does not concur with the Corps' decision, it can pursue the usual appeal and veto procedures through EPA headquarters. EPA and the Corps have

signed Memoranda of Agreement on enforcement and mitigation issues in hopes of minimizing inter-agency disagreements. The agencies establish enforcement priorities by weighing the gravity and environmental significance of the alleged violation. Violations are evaluated in terms of the precedent they may set, whether they are part of a pattern of violations, whether the violator reaped any financial benefit from the action, and what magnitude of damage was done. In areas where numerous wetlands violations have been documented, EPA may decide to use its Advanced Identification resources to conduct an intensive study, educate the local community about federal regulations, and attempt to minimize future violations.

EPA has acknowledged that Section 404 alone does not afford adequate protection for wetlands. The agency established an Office of Wetlands Protection in 1986 to coordinate the development of a national protection strategy with other federal agencies, state and local governments, developers, environmental groups, the scientific community, and the public. The "no net loss" concept may become the centerpiece of this effort, depending on the pending recommendations of the Domestic Policy Council. In the meantime, the Office is attempting to raise public awareness and increase citizen participation on wetlands issues.

U.S. Fish & Wildlife Service (FWS)

The Fish and Wildlife Service is the lead federal agency responsible for conserving, protecting and enhancing the nation's fish and wildlife populations and their habitats. Major FWS concerns include migratory birds, endangered species, certain marine mammals, and freshwater and anadromous fish, such as salmon. The Service is a branch of the U.S. Department of the Interior, which is the principal federal entity concerned with conservation. The Department manages most of the nation's federally-owned public land. Its "Take Pride in America" campaign encourages stewardship and citizen involvement in conservation.

FWS is interested in wetlands primarily because of their habitat value and importance as incubators of larval and juvenile organisms. Some valuable wetlands areas are under direct FWS control and management through the agency's National Wildlife Refuge System. The 12,199-acre Brazoria National Wildlife Refuge preserves coastal marsh areas in the vicinity of Christmas Bay that serve as wintering habitat for migratory waterfowl. FWS also monitors and draws attention to wetlands degradation and losses caused by conversions to agriculture and other uses.

The Ecological Services Division of FWS is most involved in wetlands matters because of its habitat conservation focus, but other divisions such as Fisheries and Refuges also address the issue in their programs. The Fish and Wildlife Service is guided by a Director who reports to the Secretary of the Interior. FWS has seven regional offices, and each Regional Director reports to the FWS Director in Washington, D.C. Region 2, known as the Southwest Region, is based in Albuquerque and covers Texas, Arkansas, Oklahoma and New Mexico. In addition to a national research facility, FWS has more than 700 field units and installations, including its refuges, research labs, field offices and

law enforcement offices. A field office for the Houston-Galveston area is located in Clear Lake. Most professional staff of the agency are fish and wildlife biologists or specialists in related disciplines. The Service also trains refuge managers and enforcement agents. The Youth Conservation Corps is jointly administered by FWS, the National Park Service, and the U.S. Forest Service. The Corps provides summer jobs for youths at wildlife refuges, research labs and other field sites. FWS also recruits volunteers for its various locations.

The Fish and Wildlife Coordination Act authorizes FWS to review and comment on federally-sponsored projects and permitted activities with the potential to impact habitats and fish and wildlife resources. FWS has been very active in addressing impacts to wetlands under this authority. Aside from project review, FWS also serves as a resource agency by providing expert biological advice to federal agencies, states, private industry and citizens. Field office personnel highlight potential development impacts on habitats and urge protective strategies of avoidance, minimization and mitigation. The conservation provisions of various agricultural laws direct FWS to work with agriculture and soil conservation agencies who help farmers and ranchers to develop protection plans for wetlands on private lands. This activity fits in well with FWS's partnership policy, under which it emphasizes cooperative conservation initiatives with private landowners, public agencies, corporations, conservation groups and citizen volunteers.

Congress assigned FWS a central role in wetlands conservation with the 1986 passage of the Emergency Wetlands Resources Act. The Act required FWS, acting for the Secretary of the Interior, to prepare a National Wetlands Priority Conservation Plan. The plan was to set the framework for high-priority wetlands acquisitions, as called for in the Act. Acquisitions by the states and the federal government would be financed with Land and Water Conservation Fund revenues (the fund was created by the Land and Water Conservation Fund Act of 1965). The plan also would identify wetlands that could be protected through less direct measures than acquisition. The National Priority Plan required each FWS Region to prepare a Regional Wetlands Concept Plan that would specify conservation priorities even further within each state. The National Plan established threshold criteria to guide each Region in its wetlands assessments and priority-setting. The criteria promote acquisition of those sites that are representative of a declining wetland type, have significant functional values, and are threatened with loss or degradation. The highest priority is given to wetlands whose "benefits cannot be maintained or realized except through acquisition." States may modify the threshold criteria to meet their own needs, but this must not result in standards that are below the minimum federal criteria unless the state can justify the change.

The Region II Wetlands Regional Concept Plan was completed in 1989. The Region plan identified one area within the Christmas Bay watershed -- the 32,000-acre Hoskins Mound area -- as a high-priority wetlands site for possible acquisition. Wetlands proposed for acquisition as a result of the plan must be evaluated and ranked on a national priority scale through FWS's Land Acquisition Priority System (LAPS). Funded projects are then subject to public review and comment under the requirements of the National Environmental Policy Act. Acquisition can occur through fee simple purchases,

perpetual easements, leases, deed restrictions, donations and exchanges. Throughout the process, FWS has coordinated its work with interested and affected public and private organizations. This has enabled FWS to compare its rankings to the wetlands priorities established by other groups, including the Texas Parks and Wildlife Department. FWS will continue to update the plan and priority lists as new information is collected.

FWS has a network of labs and field stations that support its fish and wildlife management research. The agency formed a National Wetlands Inventory Group under its Special Projects Branch to oversee the necessary mapping, data collection and field work required for the National Wetlands Inventory. This project enables FWS to monitor wetlands losses and analyze and report on national trends. In 1990 the agency published *Wetlands Losses in the United States, 1780s to 1980s*. This was the first of two reports that Congress asked the agency to prepare under the North American Wetlands Conservation Act of 1989. Following this historical trend report, FWS next will prepare a report entitled *Status and Trends of Wetlands and Deepwater Habitats in the Coterminous United States*. The Emergency Wetlands Resources Act requires that FWS update the status and trends report every 10 years.

Another initiative that draws FWS into wetlands protection is the North American Waterfowl Management Plan. A 1986 agreement between the Canadian and U.S. governments launched this joint conservation effort. Mexico recently signed an agreement to lend assistance. The plan aims to protect and increase waterfowl populations principally by targeting more than six million acres of critical wetlands on which these species rely. After an initial research and planning phase, the management plan now is being implemented in specific habitat areas through Joint Ventures. These ventures involve public-private partnerships for wetlands preservation. The Gulf of Mexico Joint Venture area stretches from Alabama to Texas, and conservation projects in this area are intended to protect some 386,000 acres of vital habitat by 2000. Aside from land acquisitions, joint venture participants also develop economic incentives to influence land use practices, negotiate agreements with private landowners, support improved water management, and sponsor wetlands and habitat research. This national (and international) project is one example of the ways in which FWS personnel lend their expertise through technical assistance and direct management programs.

FWS staff assist federal and state enforcement agencies by watching for violations while in the field, making referrals, and monitoring required mitigation work. The agency may send advisory letters to point out violations and supply information on applicable federal laws and regulations. FWS also works with other agencies through various committees and special projects. Finally, the agency demonstrates its commitment to public education by sending representatives to speak before citizen and business groups, by hosting teacher workshops, and by leading field trips with such groups as the Cub Scouts.

National Marine Fisheries Service (NMFS)

Protection of critical habitats, including coastal wetlands, is an integral part of insuring the health and maintenance of fisheries and species under NMFS jurisdiction. However,

like the U.S. Fish and Wildlife Service and the Texas Parks and Wildlife Department, NMFS serves only in an advisory capacity during reviews of federally-funded or permitted activities in waters of the United States. NMFS staff must work with lead agencies, such as the U.S. Army Corps of Engineers on Section 404 dredge/fill discharge permits and EPA and the Texas Water Commission on wastewater discharge permits, to insure thorough environmental reviews and minimization of adverse impacts. NMFS has review-and-comment authority under the Fish and Wildlife Coordination Act, the National Environmental Policy Act, and the Clean Water Act.

The National Marine Fisheries Service is part of the National Oceanic and Atmospheric Administration (NOAA), which is under the U.S. Department of Commerce. Galveston Bay falls within the agency's Southeast Region, which stretches from Texas to North Carolina and includes Puerto Rico and the U.S. Virgin Islands. The Southeast Region's Habitat Conservation Division has a field branch office in Galveston, where an area supervisor and other staff are based. Because of their limited expertise on water quality matters, local NMFS staff seek technical assistance from agency chemists at the NMFS laboratory in Beaufort, North Carolina, when reviewing major discharge applications. The staff review only the most significant discharge proposals because of limited resources. Aside from the impacts of wastewater effluent in estuaries, a major concern that NMFS shares with other agencies is the adverse effects on habitats of nonpoint source pollution and other byproducts of human activities.

While NMFS staff provide formal notice to other agencies of their findings and recommendations on proposed projects, they also communicate informally with other resource agency staff on a regular basis. Staff also attend interagency coordination meetings and participate in on-site inspections as needed. In addition to tracking proposed actions and permit applications, staff monitor how NMFS recommendations are received by lead agencies and to what extent they are implemented in actual projects and permitted actions. Follow-up investigations are conducted in the field as resources and staff time allow. NMFS disseminates the results of its monitoring activities and field research through *Marine Fisheries Review* and other journals. Staff would prefer to report information for individual estuaries or even portions of estuaries, but resource limitations make this level of detail impossible, so only gross figures are provided for states and Corps of Engineers districts. NMFS staff also see a need to keep a more comprehensive record of minor actions on which the agency does not officially comment.

Texas Parks & Wildlife Department (TPWD)

The Texas Parks and Wildlife Code gives TPWD primary responsibility for protecting the state's fish and wildlife resources. One of the most important ways that the department does this is by protecting habitats, and wetlands are among the most important in both upland and coastal areas. TPWD becomes involved in wetlands protection in a variety of ways, some direct and others indirect.

The department is guided by the nine-member Texas Parks and Wildlife Commission. The Commission establishes agency policy, and earlier this year it approved a new staff-developed agency-wide environmental policy. The policy contains a general statement of TPWD's overall responsibility. Protection of the state's "unique biodiversity" is the highest agency priority. This will help to focus attention on wetlands as a principal source of diversity. The new policy also intends that agency operations, such as parks and preserve areas, serve as models of proper natural resource protection. Most importantly, the policy is meant to guide TPWD staff in their day-to-day activities. An Executive Director manages the agency, and a continuing reorganization has changed the arrangement of agency divisions and branches that report to him. The Resource Protection Division remains the principal one regularly involved in wetlands issues. According to TPWD staff, there are five persons within the agency who deal with wetlands on a daily basis -- three in field posts and two in administrative positions in Austin. TPWD has designated one staff member as the agency's Wetland Resources Coordinator, and this individual also contributes to the management planning process for the Texas Coastal Preserve program as the department's Coastal Preserves Coordinator. TPWD clearly is a field-oriented agency,with more than half of its staff assigned to field locations. In addition to parks and management areas, TPWD has 28 field offices around the state. The Houston-Galveston area has a number of staff locations, including the Seabrook Marine Laboratory located directly on Galveston Bay.

As the state's lead agency for recreation planning, TPWD must maintain the *Texas Outdoor Recreation Plan (TORP)*. The federal Emergency Wetlands Resources Act of 1986 required that TPWD add an addendum to the TORP to identify wetlands as an important outdoor recreation resource. TPWD completed this task in 1988, entitling its addendum the *Texas Wetlands Plan*. This plan kept Texas eligible for federal recreational acquisition funds through the Land and Water Conservation Fund (LWCF). The federal Act mandated that the state plan be consistent with the National Wetlands Priority Conservation Plan. However, the state plan does not list specific high-priority wetlands areas to guide acquisition because the U.S. Fish and Wildlife Service (FWS) had not yet completed its priority planning for the national and regional wetlands plans. Instead, TPWD identified broad geographic areas for consideration. The Texas plan also provides general policy guidance, encourages citizen involvement in wetlands planning, and instructs that all state acquisitions which use federal funds be guided by the *TORP*, the TORP Action Program, and the state's LWCF grant project selection procedure. The *Texas Wetlands Plan* was approved by the Governor and the National Park Service following extensive public and agency review across the state.

In addition to this planning role, TPWD is the state's lead resource agency on wetlands matters. The agency has little direct regulatory authority over wetlands areas, but it participates regularly in inter-agency permit review meetings sponsored by the U.S. Army Corps of Engineers at its Galveston District Office. The agency estimates that it reviews and comments on roughly 1000 Section 404 dredge/fill discharge permits each year. It also figures that TPWD staff visit more wetlands sites in the state than any other agency in the course of reviewing and monitoring permitted activities. In the absence of independent regulatory authority, TPWD must do its best to document instances of

environmental damage and seek compensation from the responsible party. If TPWD cannot persuade the relevant action agencies to take enforcement steps against uncooperative violators, then it may decide to pursue litigation on its own. The Texas Legislature has instructed TPWD to be aggressive in both of these areas -- persuasion and litigation.

The one area where TPWD does have direct authority is through its permit program for the disturbance or removal of streambed and bay bottom material such as sand, gravel or shell from state-owned streambeds and marine bottoms. TPWD can play an active role in wetlands protection if an applicant proposes to undertake this activity in such areas. TPWD also has direct responsibility for wetlands when they are part of the State Park System or in a TPWD wildlife management area or preserve. On-site wetlands are a key consideration in TPWD master plans for park development and in management plans for other TPWD holdings, including coastal preserves leased from the Texas General Land Office. Wetlands protection is a factor in the state's planning for new park and preserve acquisitions, especially since these areas then can be used for state-sponsored wetlands research. Other ways in which TPWD promotes wetlands protection include:

- field monitoring and biological research, which supports the development of Best Management Practices for wetlands areas
- public education programs
- advisory duties for various special projects, inter-agency committees, and technical assistance programs (these activities allow TPWD staff to promote the themes of wetlands avoidance and restoration), and
- acquisition of wetlands through purchases and creation of wetlands on existing lands

TPWD's Environmental Contaminants staff contribute to wetlands protection by evaluating the impacts of proposed point source discharges, reviewing proposed state water quality standards, investigating environmental damage from pollution, pursuing mitigation by polluters, and working with dischargers in hopes of achieving voluntary prevention of impacts. Environmental Assessment staff review and comment on various project plans and related Environmental Impact Statements. This may include water supply projects that have implications for freshwater inflow into estuaries, or routine dredging and spoil disposal operations that can affect wetlands. Assessment staff advise project sponsors on ways to minimize wetlands impacts. Endangered Resources staff conduct research and field investigations to identify critical areas where scarce agency resources should be devoted to protect threatened or endangered species, and this often involves vital wetlands habitat. The staff also assess development impacts on wetlands and protected species. TPWD administers the Texas Natural Heritage Program, which was created in 1983 to inventory and manage data on sensitive and unique natural resource areas in the state. Staff involved in impact assessments turn to the Heritage Program for essential information.

Finally, more than 400 TPWD Game Wardens are in the field and can report violations of wetlands regulations to the appropriate agencies. These commissioned peace officers are joined by regular TPWD staff in monitoring activities that may impact wetlands.

Texas General Land Office (GLO)

The General Land Office is responsible for managing the state's interest in 20.5 million acres of land in Texas. Because the state has extensive holdings along the Gulf Coast, the GLO plays a lead role in protecting coastal marshes and wetlands. Internal agency policy and philosophy also have enabled GLO to become more active in wetlands protection than in the past when the conservation burden was on the Texas Parks and Wildlife Department.

Under the Texas Natural Resources Code, GLO has the dual responsibility of generating revenue through permitted uses of state land while also protecting the long-term viability of those lands. The GLO carries out the latter duty by requiring all activities on state-owned land to meet established environmental standards.

General Land Office programs are guided by the three-member School Land Board and the elected Texas Land Commissioner, who chairs and is one of the three members of the Land Board. The Land Commissioner's office produces a four-year internal agency plan with agency-side goals and objectives to guide staff activities. A recent reorganization created eight "program areas" within the GLO. Wetlands protection activities are primarily the responsibility of the Resource Management staff. A Coastal Division within the Resource Management program area oversees coastal wetlands issues. The division includes a newly-hired wildlife biologist who will serve as GLO's Coastal Preserve Coordinator. GLO's General Counsel has an attorney assigned to coastal matters. Administrative staff are based at GLO's Austin headquarters, while field activities are carried out from GLO's Upper Coast and Lower Coast Field Offices. The Christmas Bay area is monitored by Upper Coast field staff based in La Porte.

GLO recently completed its first *Texas Coastal Management Plan*, as mandated by the 71st Texas Legislature in 1989 (under Senate Bill 1571). Wetlands protection was one of the principal issues addressed by the plan. In preparing the plan during 1990, GLO brought together an 84-member Coastal Management Advisory Committee, a federal agency task force, and a state agency task force. The agency sponsored a series of workshops as well as multiple public hearings at sites along the Texas coast. This process led to numerous recommendations to address such concerns as: wetlands loss, degradation, inter-agency coordination, public education, appropriations, and wetlands enhancement and restoration. Among the highlights are:

- Establishing a state goal of no overall net loss of wetlands, based on acreage and function, that will be consistent with the federal definition. GLO calls for the

creation of an implementing framework, with TPWD taking the lead in monitoring and enforcement.

- Conducting regular, standardized wetlands inventories to monitor losses and mitigation efforts.
- Adopting a State Wetland Conservation Plan for coastal public lands. The plan would promote the "no net loss" goal and establish procedures for achieving it. GLO calls for coordination between itself, TPWD, and the Texas Water Commission in preparing the plan, with TPWD taking the lead in its preparation.
- Requiring preparation of long-range navigational dredging and spoil disposal plans to assure adequate wetlands protection.
- Completing studies and taking actions to insure that upstream water supply projects do not adversely impact coastal wetlands.
- Examining the possibility of a formal coordination mechanism among state agencies on wetlands issues.
- Requesting that the federal government establish a National Wetlands Information Center.
- Coordinating agency protection policies and eventually drafting inter-agency Memoranda of Agreement.
- Promoting funding mechanisms and other land protection techniques such as conservation easements.

GLO successfully promoted two coastal management bills -- Senate Bills 1053 and 1054 -- during the recent state legislative session (the 72nd Texas Legislature). These bills provide for implementation of the Coastal Management Plan by "fine-tuning" existing coastal statutes and expanding GLO's management authority. The bills direct GLO and TPWD to prepare a wetlands plan for coastal public lands, promote a "no net loss" policy, and work toward priority wetlands acquisitions through TPWD.

In addition to its long-range planning duties, GLO's Resource Management program routinely monitors wetlands impacts by conducting environmental assessments of activities proposed on state land. GLO also supports internal wetlands research and studies by TPWD and other agencies. The School Land Board may lease state-owned lands for such research, just as it leases areas to TPWD under the Texas Coastal Preserve program. The coastal preserves themselves are an effective GLO tool for wetlands protection in targeted areas, with TPWD developing a management plan for each preserve. GLO regularly offers field assistance to other agencies, but it does not have the same level of field resources to contribute as do other agencies. As a result, GLO focuses on policy and planning and then advises other agencies on possible protection steps, such as acquisition priorities for TPWD.

GLO continues to consider its own draft mitigation policy for unavoidable environmental damage caused by projects on state-owned lands. The agency has proposed a mitigation ratio of 3:1, which is more demanding than the more typical 2:1. The draft policy also sets out a preferred sequence of mitigation steps, and it directs that mitigation requirements be written into GLO leases and easement contracts as a condition of project approval. Finally, the policy indicates a preference for mitigation on state-owned lands when possible. If mitigation must occur on private land, then GLO requires that it be granted a perpetual conservation easement for access to the mitigation site.

GLO's Resource Management Code is designed to signal project sponsors and developers of state-owned land of potential environmental constraints on their activities, such as the presence of critical habitat or wetlands. A multi-agency assessment process supervised by GLO supports the development of standardized codes and an associated database. The codes, which are linked to individual tracts, give permittees advance knowledge of probable agency concerns, allowing them to modify their plans in advance and prepare acceptable mitigation steps if necessary.

Management Evaluation Findings

1. *Agency staff warn that they cannot be expected to be effective in their wetlands protection efforts without adequate funding support.*

   Agency staff say that there is a universal need for more field staff, but especially in the area of wetlands regulation and conservation. They are concerned that "top-heavy" agencies may not be capable of effective wetlands protection. As in so many areas of environmental regulation, wetlands protection specialists say that they do what they can with the resources they have.

   Staff for the Corps of Engineers say that wetlands enforcement activities have been short-changed in recent years, but the situation is improving now. Yet, despite an increased emphasis on compliance and mitigation, the Galveston District still has limited resources for field monitoring. The District has only six field biologists in its Compliance Section, and staff say that they will need more help to be effective in enforcement. But they believe that their dilemma has been recognized because they apparently will be receiving additional positions soon. Staff emphasize that such lags in problem recognition by management must be anticipated and resources must be managed carefully during these interim periods of inadequate staffing. The Corps should be able to boost its resources with a new fee schedule for its services. Processing of individual Section 404 permits now requires a $10 fee, while commercial and industrial sites require a $100 fee. The applicant does not pay the fee until the Corps issues a permit, so the Corps does not receive a payment when a permit is denied or the application is withdrawn. Staff list this as their only complaint with the new fees because they must devote the same amount of time and

resources to a review whatever the eventual outcome. An expanded fee schedule for site visits and wetlands determinations (based on acreage) is expected later this year.

Staff at the Texas Parks and Wildlife Department report that a new Executive Director has brought increased support for the Resource Protection Division. Commitment of more staff and resources to the division is meant to give it a higher profile at the regional level across the state. In general, though, TPWD staff worry that their agency and others are still too reactive when its comes to wetlands protection. They say that there are countless environmental concerns for the staff to become involved with but limited time and resources. As a result, agency staff tend to move from subject to subject, touching on things but never getting as deeply involved as they probably should. The challenge for the staff is to set priorities effectively -- to "pick your fights," as one person said -- but still maintain a "presence" on a range of issues. Staff members also point out that it is nearly impossible for public agencies to satisfy so many different constituencies, each with their own priorities. Despite EPA's promotion of a risk-based approach to environmental management, agency staff still must respond to elected officials, media, citizens, and other divisions of their agency, even when they know that they are wasting time and energy on concerns that are low on the priority scale. Dealing with these "brushfires" and being "tugged and pulled" in so many different directions keeps staff from focusing on longer-term projects and issues.

The Texas General Land Office also sees a need for more field staff to devote to wetlands protection. GLO recently was able to add an extra person to each of its field offices to assist with permit reviews and environmental assessments. The agency actually has shifted permitting paperwork to the field level because of these new resources away from headquarters. Agency officials would prefer to set aside more staff time for monitoring the cumulative effects of permitted actions on state lands. Unfortunately, even under the Texas Coastal Preserve program, neither GLO nor TPWD has adequate resources to prepare or sponsor elaborate management plans. GLO at least tries to identify significant problems and suggest possible solutions, as in the *Texas Coastal Management Plan*. GLO staff refer to the plan as another agency activity that was mandated by the Legislature without any additional resources. In it, GLO calls for TPWD to prepare a State Wetlands Conservation Plan, even though it knows that TPWD will need additional funding to complete such a project.

In addition to their internal resource needs, agencies point to the scarcity of funds for direct wetlands acquisition by all levels of government. GLO is considering placing a $100 million bond package on the November ballot to finance parkland and wetlands acquisitions and other preservation activities. If approved, these funds could be used as a state match for federal land acquisition funds that may be authorized as a result of wetlands protection legislation now under consideration in Congress. But EPA staff note that the competition will be intense among coastal states and others seeking wetlands funds. States will have to demonstrate a sound resource management package and effective planning and priority-setting

mechanisms. GLO is calling for close coordination between itself, TPWD, and the U.S. Fish and Wildlife Service to insure that Texas meets federal requirements. The added benefit for GLO is that all of these activities will help to implement the *Texas Coastal Management Plan* as well.

2. *Guidance on nationwide implementation of the "no net loss" concept" is expected soon. In the interim, there is no comprehensive resource policy for wetlands on a par with other types of environmental regulation, which greatly handicaps agency efforts to avert wetland losses.*

   The President's Domestic Policy Council, through its Inter-Agency Task Force on Wetlands, has been studying implementation of the "no net loss" concept by federal agencies. EPA and the Corps of Engineers both have representatives on the Task Force. Officials at EPA Region 6 point out that the Council has gone well beyond its mandate after sponsoring a series of public meetings across the country. The Council received extensive input from the various regulatory and resource agencies, private industry, environmental organizations, and the public. The Council's meetings encouraged debate not only on "no net loss," but on what the key issues really are in wetlands management and how they should be addressed by the relevant agencies, each with their unique perspectives. The Council's work continues, and EPA staff do not know when it will report its findings and offer recommendations.

   For the time being, according to Corps staff, "no net loss" will be just a goal and not an operating policy. Staff say that the agencies cannot take action until they receive guidance. But the agencies already are moving in that direction through their coordination of mitigation policies and other aspects of wetlands regulation under Memoranda of Agreement and Understanding. It is expected that the final implementation strategy for "no net loss" will emphasize both regulatory and non-regulatory approaches. The Council also was asked to examine regional differences in the nature of wetlands loss, state and local government involvement, the key role of private conservation groups, the need for improved coordination of Section 404 permitting and other environmental laws such as NEPA, the feasibility of market-based strategies, and the importance of effective mitigation policies, including possible mitigation banking.

   The Texas General Land Office is promoting "no net loss" as an appropriate policy for wetlands protection on state-owned public lands. Several bills before the Legislature would formalize this policy and direct state agencies to observe it in their activities. But some Texas Parks and Wildlife Department staff caution that all of the involved parties will need a clear definition of "no net loss" and a better idea of how the policy will be applied in practice. GLO began this clarification process in its *Texas Coastal Management Plan* by using the term "no *overall* net loss" of wetlands. It also said that the policy should be based on wetlands acreage and function. TPWD staff emphasize the difficulty of quantifying the value of wetlands.

They are not certain how unknown values can be traded to offset "losses" and demonstrate wetlands "gains."

3. *State and local governments have essential roles to play in wetlands protection.*

The Texas General Land Office and the Texas Parks and Wildlife Department are hoping to expand state government involvement in wetlands protection. Federal agencies welcome this trend, but agencies such as the Corps say that federal/state coordination will be essential to avoid duplication of efforts and insure complementary programs. The staff also note that federal agencies have developed considerable expertise in the wetlands area and can be of help to state agencies as they initiate their own wetlands inventories, mitigation research, and other activities. Ultimately, the Corps of Engineers would prefer to transfer Section 404 permitting responsibility (in non-navigable waters) to suitable state programs. In the meantime, the Corps says that initiatives such as the Texas Coastal Preserve program allow the states to communicate their conservation priorities to federal agencies. In the Galveston Bay area, Armand Bayou and Christmas Bay will be more quickly recognized as environmentally sensitive areas, and this will be a definite consideration in permitting, according to the Corps. TPWD has emphasized this factor in its management planning, and GLO also intends to scrutinize all permitted activities proposed for the Coastal Preserves and other sensitive coastal areas. Some TPWD staff even call for state veto authority over projects that could cause significant damage to the Texas environment.

GLO officials believe that it was important for the state to complete a coastal management plan to show that it had not forsaken planning and policy development when it rejected the Coastal Zone Management approach. They regret missing out on more than a decade of federal funding, but they hope that the state's new plan will help to attract more federal assistance and funding for coastal projects, including wetlands protection. Their principal concern is whether the federal government will be able to maintain its commitment to coastal programs just as Texas has finally begun to do its part.

State agency staff say that they will need guidance on upcoming state wetlands policy, whether it deals with water quality, mitigation sequencing, acquisition priorities, or any other aspects of wetlands protection. TPWD staff advise that any state policy be concise, easily understood, enforceable, and acceptable to the public. They also say that if a state protection program is to be effective, it must remain free of politics and meddling once a policy is agreed upon. There is some concern about GLO taking the lead in an area where it is at a disadvantage in terms of staffing and experience. But others emphasize the need for strong leadership in any type of environmental regulation in Texas due to its fragmented collection of regulatory agencies. One advantage that Texas has in the wetlands area, according to TPWD staff, is the combination of outdoor recreation planning and fish and wildlife functions under one agency. These were two areas of concern that had to be coordinated under the requirements of the federal Emergency Wetlands Resources

Act, so Texas was well-positioned to begin its mandated wetlands planning. Some agency staff recommend close duplication by the state of existing federal protection measures. They definitely do not want the state to do any less and be left behind, but they also caution against getting too far ahead of nationwide initiatives and risking loss of public support for conservation efforts. They call for prompt development of state policy to minimize the time before meaningful protective action is taken. (In the meantime, some emphasize the need for more effective use of the state's authority to certify federally-permitted actions in wetland areas under Section 401 of the Clean Water Act. This water quality certification process is carried out by the Texas Water Commission in Texas. There is criticism that the 401 process is only an "administrative exercise" in Austin, with little coordination of proposed permits and other information within TWC.)

GLO envisions local governments as the ultimate "base" for wetlands and coastal conservation initiatives in Texas. This would seem to focus attention on municipalities unless Texas counties are granted more authority in land use and environmental matters. The challenge for state agencies, according to GLO, is to anticipate and confront diversity in local values, interest, resources and capabilities. The state will have to help local governments organize and ready themselves for upcoming state and federal wetlands mandates. Local elected officials also will need the support of their constituents to launch an effective local protection program. Wetlands advocates suggest close attention to successful local government strategies in other states. For example, municipalities in some eastern state address wetlands issues as part of their routine development review process. Local protection ordinances establish buffer requirements and minimum setbacks from wetlands. Municipal zoning also may require that an applicant exclude "wet" portions of a site from the calculation of minimum lot area. Perhaps the most important contribution a local government can make is to carry state and federal wetlands inventories to the micro level by identifying and mapping environmentally sensitive areas of the community.

4. *More than most types of environmental regulation, wetlands protection troubles some agency staff because of the fundamental equity issues it raises.*

Staff from numerous agencies speak of frustrated landowners who are being told by their government that activities they did routinely in the past on their private property no longer are allowed. For example, society traditionally encouraged the draining or filling of "swamps" to put those areas to "beneficial" use. But now society is telling landowners that "wetlands" are valuable and should be "protected." Property owners view this as unfair regulation of private property rights. The property rights issue is a serious concern for some staff because they worry that government regulations are impinging on the "little man," the individual landowner who bought his property in good faith and now -- with no formal notice -- is seeing it being "taken," although he may not be able to make that claim in a legal sense. The property owner often is faced with a lack of alternatives once his property is identified as containing wetlands. Adding to his frustration is the fact that most

wetlands are not valuable enough, or sufficiently at risk, to justify an outright government purchase, even if the government had the funds to do so.

In many cases in rural or suburban areas, absentee property owners have been paying taxes on land for years, holding the property as an investment or waiting for development opportunities. Now they are discovering that they cannot develop because of wetlands -- in some instances, they cannot even drive a fence post. So agency staff emphasize that everyone involved in wetlands regulation has to appreciate the level of aggravation and confusion among some landowners, especially when they see so many state and federal agencies clamoring over a single issue. The U.S. Soil Conservation Service has hired public information specialists to improve agency communications and public relations on the wetlands issue, and others are following suit.

Agency staff also stress the difficulty of even raising the idea of land use regulation in some parts of Texas. Aside from the usual philosophical opposition, there also is the fact that Texas is so large, its wetlands and other natural resources are so widespread, and so much of its land is under private ownership. Add to that the traditional, deep-rooted rural and urban opposition to land use controls in the state, and agency staff say that the whole notion of comprehensive wetlands protection in Texas becomes more worrisome and challenging.

EPA staff say that lawmakers and regulatory agencies must recognize that many developers and landowners just want guidance on how they can use their investment. At the same time, the property owners must have some patience because it will take time to develop a reasonable, enforceable, effective approach to wetlands regulation. EPA staff believe that the arrival and growth of federal funding to the states for conservation planning, coastal programs, and land acquisition should gradually help to ease tensions over the wetlands issue.

5. *All of the involved agencies emphasize the need for increased public awareness of wetland functions and value, and of government capabilities (and efforts) to protect these sensitive areas.*

Agency staff say that even after the surge in attention to wetlands in recent years, the public and private entities involved in wetlands protection still must do a better job of communicating the severity and implications of wetlands loss. They note that the effectiveness of their programs is reduced by a basic lack of knowledge among the public of agency jurisdictions and regulations regarding wetlands. There is concern that wetlands regulations are being applied inconsistently and that enforcement is too reactive and selective since the agencies rely so heavily on complaints and random field observations. Too often project sponsors and even local agencies reviewing a project do not know that a Corps of Engineers permit is required. Corps officials note that controversies over wetlands in the Houston area, such as the City of Houston's westside airport site and problems with the Grand Parkway's proposed route, have helped to raise public awareness of wetlands regulations. EPA staff

caution critics not to assume that citizens do not respect the law. EPA views it as an awareness problem requiring extensive "non-regulatory" efforts by all levels of government to improve wetlands education and outreach. EPA staff believe that it is up to their agency to expend as much effort on the non-regulatory approach as is being spent on direct regulation. Staff at other agencies call for higher-profile, nationwide initiatives for wetlands awareness. Some also would like to see greater attention drawn to violations of wetlands regulations. While some see a need to encourage greater public involvement in the regulatory process, others note that numerous opportunities for public input already exist. As with most types of environmental regulation, they say that it will require devoted advocates who are willing to make a long-term commitment to learning how the process works and following its results. These individuals must monitor regulatory activities routinely to detect problems and point out inconsistencies. Staff at the Texas Parks and Wildlife Department emphasize that citizens must appreciate what the various agencies can and cannot do with regard to wetlands. They say that too often they hear the argument: "Why doesn't the government just buy it?" TPWD staff believe that the key to effective wetlands protection is the ability of public agencies to convince private landowners of the critical need for voluntary conservation of wetlands.

The involved agencies are very aware of the need for expanded contacts between conservation agencies and the public. There also is a bit of agency image enhancement involved. Corps staff report improved public relations by their agency in recent years following the creation of a District Public Affairs Office and the publication of a quarterly newsletter. Corps staff also are enthusiastic about sponsoring or attending public informational meetings upon request. At the state level, the Texas Parks and Wildlife Department has established a new Conservation Communications Division, and the General Land Office stays in touch with coastal residents through its coastal management planning, the recreational cabin program, and its various volunteer events. The agencies refer to an "environmental awareness cycle" that they know is reaching another peak in the United States. They hope to capitalize on the current upside of the cycle while also attempting to flatten the cycle and keep public interest high over time.

Agency staff believe that they face a particular challenge in Texas because of what they perceive as an economic development mindset. Judging from other populous states, they say that Texas should have a much higher level of environmental sophistication than it does. They sense a higher regard for coastal wetland resources in other states, and they say that state governments are more active in those cases as a result. Staff members complain that there is no such consensus for action in Texas. Some theorize that it is the state's size and abundant resources that lulls citizens into underestimating the extent of environmental degradation in Texas. They say that the same logic can be applied to Galveston Bay. The agencies worry about environmental short-sightedness in Texas and a lack of appreciation for the total environment. While some are optimistic that there is a "silent majority" of passive environmentalists in the state, they are concerned that official conservation

efforts do not generate more obvious support among Texas citizens and their elected leaders.