Chapter Two
POINT SOURCE DISCHARGES

Summary of Findings

1. *Agency managers are deeply concerned that the combination of lean government budgets and expanding regulatory mandates for their agencies will create an unbearable administrative burden, force undesirable trade-offs, and -- worst of all -- threaten twenty years of water quality progress achieved through effective point source regulation.*

2. *Regulatory agencies are worried about deterioration in the quantity and quality of water quality data.*

3. *Some critics believe that there are inherent weaknesses in traditional engineering-based approaches to point source discharge permitting which undermine environmental protection objectives.*

4. *There is broad agreement that stream monitoring is the most direct method for assessing water quality progress, but extensive monitoring is costly and difficult to defend in tight budgetary times.*

5. *There are clear opportunities for better coordination of point source regulatory efforts between state agencies and between state and local agencies.*

6. *Some Texas Water Commission staff express concerns about the occasional permit case that is perceived by the public and the staff -- whether rightly or wrongly -- as being overshadowed by political considerations.*

7. *The authorization of administrative penalties for the Texas Water Commission was a significant accomplishment in itself, and the speedier imposition of penalties for discharge violations has proven to be an effective enforcement tool in many cases.*

8. *Streams, bays and estuaries are complex, dynamic natural systems, and regulatory agencies can never achieve perfect knowledge and understanding of them. This fact underscores the importance of prior research and problem identification to insure effective regulatory action.*

9. *Aside from the economic incentives to "regionalize" wastewater treatment, agency staff emphasize the management benefits of plant consolidations.*

10. *Regulation of point source discharges is not a static process, so agencies must be flexible.*

11. *Agency staff are uncertain what impact the designation of Christmas Bay as a Texas Coastal Preserve may have on existing point source regulatory procedures in the watershed.*

The involved agencies are generally satisfied with the legal authority that they possess and the policy role they play in point source regulation and monitoring. Concerns arise over the inadequacy of resources to implement point source control policies in an effective fashion, especially as new regulations in other management areas put additional strain on agency resources. There are also clear opportunities for improved inter-agency coordination of point source programs, especially in the area of enforcement. Another much-repeated concern involves discrepancies in jurisdiction between the Texas Water Commission and the Texas Railroad Commission and the water quality problems that can result from inadequate regulation of oil and gas-related discharges.

Action Recommendations

Action: *The involved agencies should work together, under the lead of the Texas Water Commission, to develop a comprehensive strategy for effective water quality monitoring in Christmas Bay and its tributaries.*

Involved Agencies:

- Texas Water Commission
- U.S. Geological Survey
- U.S. Environmental Protection Agency
- Texas Department of Health
- Railroad Commission of Texas
- Texas Parks and Wildlife Department
- Texas General Land Office

Rationale: Maintenance of superior water quality presumably will be one of the objectives of the Coastal Preserve program in Christmas Bay. Agencies concerned with water quality must have appropriate and adequate data to recognize problems, document trends, and recommend necessary corrective actions. The preserve monitoring strategy should reflect an inter-agency assessment of existing monitoring efforts for Christmas Bay under the Statewide Monitoring Network, future monitoring objectives under the Coastal Preserve program (including the need for more extensive

upstream monitoring), specific data needs, and funding requirements to meet these monitoring objectives. The agencies also should explore the potential contributions of citizen monitoring and local government monitoring. If Brazoria County expresses an interest in conducting routine monitoring in response to citizen concern for the Bay, then appropriate state agencies should provide technical assistance and guidance. The Texas Water Commission should build on existing efforts to coordinate state agency monitoring programs and standardize techniques to encourage data-sharing. The agencies might use Christmas Bay and other coastal preserves as "pilot" areas for staff training, testing of new monitoring techniques and equipment, and evaluation of monitoring approaches.

Action: *Administrative penalties should be carefully applied to insure compliance with point source discharge regulations in the vicinity of Christmas Bay.*

Involved Agencies:
- Texas Water Commission
- U.S. Environmental Protection Agency

Rationale: Administrative penalties have proven effective and are now a key feature of statewide point source regulations. They also can be an effective tool for protecting coastal preserve areas. Agencies calculate their penalties based on a variety of factors. The involved agencies should consider whether discharge violations in or near a coastal preserve should be penalized at a higher rate than otherwise would be assessed. They also should explore other enforcement options that could be used when administrative penalties would not be effective, especially to address minor violations. One concern with the existing penalty approach is that most of the revenues go back into the state's general fund. Interested parties should investigate the feasibility of having some portion of penalty revenues earmarked for coastal preserve programs, such as ongoing enforcement or routine water quality monitoring. EPA and Texas Parks and Wildlife Department staff have expressed their support for this idea.

Action: *The involved agencies should capitalize on the Coastal Preserve program as an opportunity to improve inter-agency coordination of point source programs.*

Involved Agencies:
- Texas Water Commission
- U.S. Environmental Protection Agency
- Railroad Commission of Texas
- Texas Parks and Wildlife Department
- Texas General Land Office

Rationale: The involved agencies should develop formal cooperative agreements for point source activities that would benefit from improved coordination, such as data collection, monitoring, permit review, and enforcement. Such agreements could be implemented on a temporary basis in the vicinity of a coastal preserve. The lessons learned from this experience could then be used to write improved agreements for statewide implementation. The General Land Office and the Parks and Wildlife Department should work with the Texas Water Commission to establish formal notification procedures for permit applications in the vicinity of a coastal preserve. The Water Commission should notify each agency's Coastal Preserve Coordinator when a proposed or renewing discharge may affect a coastal preserve.

Action: *A formal policy review should be completed to determine how Christmas Bay's coastal preserve status will affect routine point source regulatory procedures in the area.*

Involved Agencies:

- Texas Water Commission
- U.S. Environmental Protection Agency
- Railroad Commission of Texas

Rationale: The involved agencies agree that coastal preserve status should be a consideration in point source discharge permitting. But definite policies and procedures must be established to guide agency staff. For example, EPA staff noted that more stringent permit requirements may be appropriate in the vicinity of a coastal preserve. Other individuals raised the possibility of special use designations or higher standards for waters in, or flowing into, a coastal preserve. It may be necessary to conduct an intensive water quality study and an evaluation of current permits in each coastal preserve area to assess the need for regulatory action beyond existing efforts. This review process should outline various regulatory options and their potential effectiveness. It also should explore under what conditions the permitting agencies would allow no further effluent discharges in the area. In the case of Christmas Bay, the Texas Water Commission should clarify whether the Bay is considered "outstanding national resource waters" under the Commission's antidegradation policy. If it is given this designation because of the presence of the Brazoria National Wildlife Refuge, then the Bay would seem to enjoy maximum protection under existing point source regulatory policy, with added recognition through the Texas Coastal Preserve program. The Texas Parks and Wildlife Department supports this designation for Christmas Bay and plans to

recommend the same in its draft management plan for the preserve. Meanwhile, EPA staff have expressed their support for the type of formal policy review suggested here, although they advise that the purposes of such a review be clearly defined in advance.

Action: *The regulatory agencies must be given adequate funding for existing point source programs as well as for new water quality management initiatives.*

Involved Agencies:

- Texas Water Commission
- U.S. Environmental Protection Agency
- Railroad Commission of Texas
- Galveston Bay National Estuary Program

Rationale: The work of the Galveston Bay National Estuary Program will help to highlight funding priorities and shortfalls in existing water quality management agencies. The Estuary Program also can promote the need for adequate funding to improve management effectiveness, especially in the critical area of water quality monitoring. EPA has called for much more comprehensive coverage of minor dischargers under an NPDES permit program administered by the state of Texas, but the Texas Water Commission will need sufficient resources to meet this objective. EPA staff also see a need for increased funding of point source permitting and enforcement functions in their own agency and the Water Commission. If the state and federal governments cannot afford or are not willing to devote more resources to point source regulation, then the involved agencies should decide how resources might be targeted to especially sensitive areas such as coastal preserves. In addition, agency managers must give their field staff clear guidance on whether coastal preserve areas should receive extraordinary attention in terms of monitoring, compliance inspections and other field activities.

Christmas Bay Management Framework:
POINT SOURCE DISCHARGES

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
EPA	1. Clean Water Act: - Water quality standards (Sec. 303) - NPDES permitting (Sec. 402) - Water quality management (various sections) - NPDES enforcement (Sec. 309) - Monitoring (Sec. 106) - Construction grants (various sections)	1. U.S. Congress: - statement of national goals and policy in Clean Water Act 2. EPA Administrator: - Code of Federal Regulations 3. Regional Administrator, Region 6	1. Guidance and funding of state and local water quality management planning 2. Review and approval of state water quality standards 3. NPDES permitting, monitoring and enforcement 4. NPDES toxicity limitations and technical assistance on toxics reduction and regulation 5. Technical support for state discharge permitting programs 6. Permit tracking, compliance monitoring and field investigations 7. Oversight of state water quality monitoring programs 8. Management of EPA and state water quality data with STORET 9. Oversight of municipal pretreatment programs 10. Oversight of state-delegated funding programs for sewage treatment improvements	1. Water Management Division (Dallas): - Water Quality Branch (State Programs and Technical Sections) - Permits Branch (Municipal, Industrial, Toxics Control and Admin. Issuance Sections) - Enforcement Branch - Construction Grants Branch 2. Environmental Services Division (Dallas) - Surveillance Branch (Facilities Compliance and Environmental Analysis Sections)

Christmas Bay Management Framework:
POINT SOURCE DISCHARGES

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
TWC	1. Texas Water Code, Chapter 26	1. Texas Water Code: - statement of public policy 2. Texas Water Commission: - TWC rules in Texas Administrative Code - State Surface Water Quality Standards 3. TWC Executive Director 4. TWC guidance documents	1. State water quality management planning 2. State Surface Water Quality Standards: - designation of beneficial water uses and criteria - antidegradation policy 3. Permitting of municipal and industrial discharges - implementation of state water quality standards (toxics, antidegradation) 4. State Water Quality Monitoring Network: - transfer of data to EPA's STORET database - biennial Texas Water Quality Inventory 5. Monitoring of self-reporting data from permittees 6. Compliance inspections and field investigations 7. Enforcement actions: - compliance conferences - mandatory enforcement based on permittee data - enforcement hearings	1. Executive Director 2. Water Quality Division: - Water Quality Standards and Evaluation Section - Wastewater Permits Section - Wastewater Enforcement Section 3. Field Operations Division: - District 7 Office (Houston) 4. TWC Analytical Laboratory (Houston) 5. Office of Hearings Examiner 6. Legal Division

Christmas Bay Management Framework:
POINT SOURCE DISCHARGES

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
TWC	(continued from page 23)		- Commission orders and administrative penalties - stipulated (performance-based) penalties - litigation 8. EPA/TWC Enforcement Agreement 9. "75/90" rule for mandated expansion of treatment capacity 10. Regionalization strategy 11. Special field studies and intensive surveys	
RRC	1. Texas Natural Resources Code, Chapter 91 2. Texas Water Code, Chapter 26 3. Texas Health & Safety Code, Chapter 361: - Texas Solid Waste Disposal Act (Memorandum of Understanding requirement for RRC, TDH, TWC)	1. Railroad Commission - Statewide Rules for Oil, Gas and Geothermal Operations - Statewide Rule 8 (Water Protection)	1. Statewide Rules and RRC orders 2. Permitting of wastewater discharges from oil and gas operations 3. Adoption of Statewide Rule 77 (Discharges to Waters of the State) in anticipation of NPDES delegation by EPA 4. Field monitoring and routine compliance inspections	1. Director, Oil & Gas Division (Austin) 2. District 3 Office (Houston)

Christmas Bay Management Framework:
POINT SOURCE DISCHARGES

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
RRC (continued from page 24)			5. Self-reporting system (quarterly discharge reports to District office) 6. Investigation of complaints and of TPWD referrals under an Interagency Notification Plan for Pollution Response 7. Administrative enforcement steps, including administrative penalties and permit revocation 8. Civil and criminal enforcement actions through the Texas Attorney General's Office. 9. Emergency and minor permits from Director of O & G Division 10. RRC/TDH/TWC Memorandum of Understanding 11. Participation on Texas Ground-water Protection Committee and Toxic Substances Coordinating Committee	

Management Concern:
POINT SOURCE DISCHARGES

Background

Point sources of pollution emanate from a single defined source -- in the public's mind, usually from the end of a pipe. Examples include effluent discharges from sewage treatment plants and wastewater discharged from industrial sites. Control of these critical discharges has been a top priority of federal, state and local governments since the 1972 passage of the Federal Water Pollution Control Act Amendments, better known as the Clean Water Act. Much of the progress which has been made toward cleaner water over the last two decades has been attributed to regulatory programs that target point sources.

Despite vastly improved methods and capabilities for regulating point sources of pollution, the fact remains that this activity involves direct, concentrated discharges to the nation's waters. As a result, regulatory programs *must* be effective to insure that water quality is not degraded by permitted and proposed discharges into local water bodies.

Nature of the Problem at Christmas Bay

The *Environmental Inventory of the Christmas Bay Coastal Preserve* emphasized that there are no known water quality problems -- nor indications of potential problems -- in Christmas Bay or the adjacent small bays. This is the attraction, and the preservation opportunity, of Christmas Bay for the Coastal Preserve program. However, agency staff note that Bastrop Bayou has periodic water quality problems that can be traced to point source discharges, as well as to other pollution sources. As a result, Bastrop Bayou has been classified as "water quality limited," which requires use of advanced treatment by dischargers and careful monitoring for violations.

Effective management of this key tributary and other lesser streams flowing into Christmas Bay will be essential to Bay protection. Part of the problem is that these tributaries are tidally influenced, which can cause some pollutants to cycle back upstream before being carried downstream. The positive aspect of this phenomenon is that the effluent may be diluted more thoroughly in upstream areas before it reaches the more sensitive Bay system. The *Environmental Inventory* estimated that just under 8% of the existing freshwater inflow into Christmas Bay is contributed by permitted point source discharges.

Therefore, the main concern for coastal preserve management is potential growth in effluent volume into Christmas Bay tributaries and the effective permitting and treatment of these discharges.

Key Management Agencies

U.S. Environmental Protection Agency (EPA)

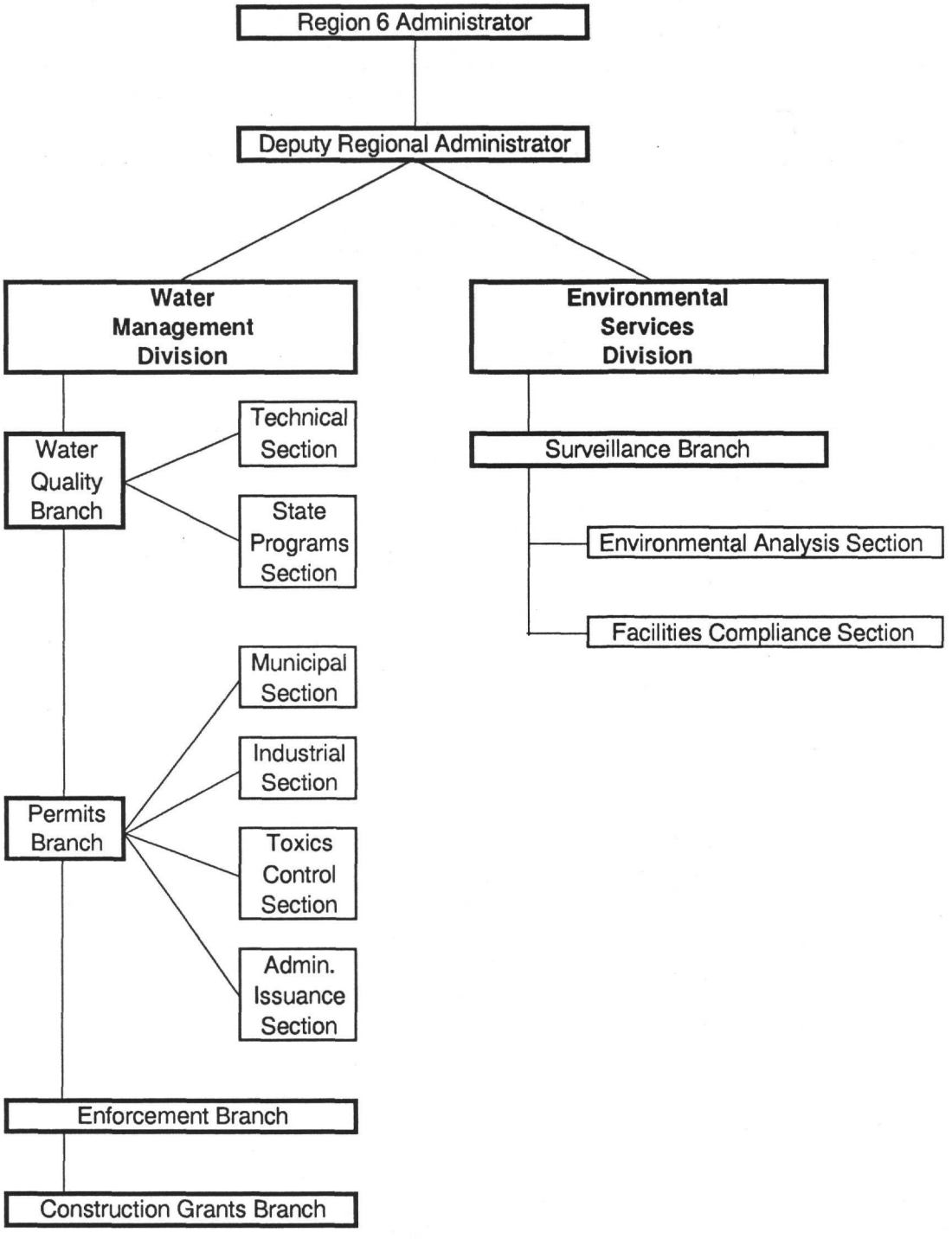
EPA is the lead agency guiding nationwide water quality management, primarily through its funding support and oversight of state water quality programs. It is EPA's responsibility to insure that the states and nation are progressing toward the fundamental goal of restoring and maintaining the chemical, physical and biological integrity of the nation's waters. While the Clean Water Act establishes a goal of zero discharge of pollutants, the practical philosophy behind implementation is that point source regulations should result in the elimination of adverse impacts from point sources to designated uses of the nation's waters. This should also lead to a level of water quality that will promote human health and the viability of fish and wildlife resources. EPA has four primary tools to achieve its mandates under the Clean Water Act:

- national clean water standards and implementing regulations
- a national permit program for point source discharges
- federal funding support for enhancement of local sewage treatment capabilities
- support of state water quality planning and management programs

EPA Region 6 personnel administer the agency's water quality and point source programs in Texas. A Regional Administrator manages Region 6 operations in Dallas. He is one of 10 regional administrators who report to the agency's Administrator, based at EPA headquarter 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 Region 6 covers Texas, Louisiana, Arkansas, Oklahoma and New Mexico. Figure 2 on the next page provides an illustration of the Region 6 program areas that are involved with or supportive of point source regulation. The Water Management Division is the most important of these. One of its chief functions is to advise the Regional Administrator on appropriate goals, objectives and priorities for regional water quality management and point source control efforts.

The Technical Section of the Water Quality Branch helps the Texas Water Commission to develop surface water quality standards for the state. These standards are the first step in implementing the Clean Water Act. The states must review and, if necessary, revise their water quality standards at least once every three years. The Technical Section reviews a draft of the revised standards before TWC distributes them for public hearing and comment. After TWC responds to public input and adopts a new version of the water quality standards, it must seek EPA approval of the updated standards through the Technical Section. If EPA finds that the state's proposed standards are not consistent with national goals under the Clean Water Act, it is authorized to set different standards for the state if the state does not make satisfactory revisions on its own.

FIGURE 2: EPA Program Areas Involved in Point Source Regulation



The Water Management Division's Permits Branch supervises the necessary administrative, technical and scientific work that goes into issuing an EPA discharge permit under the National Pollutant Discharge Elimination System (NPDES). NPDES permits are required for all pollutant discharges into waterways from specific point sources. This includes outfalls from industry; municipal sewage treatment plants; certain agricultural, forestry, mining and fishing operations; and certain other commercial activities. NPDES permits are issued for five-year periods. The Permits Branch administers the permitting process in each state unless it has been delegated to an EPA-approved state program. EPA still conducts NPDES permitting in Texas, although delegation to the Texas Water Commission is expected at some future date pending further negotiation. It is also possible that discharge permitting for oil and gas operations will be delegated to the Railroad Commission of Texas if EPA conditions can be met. EPA's Permits Branch assumes an oversight and guidance role once permitting is delegated to a state.

The national permitting system includes the following elements:

- nationwide effluent limitations and performance standards for point source discharges
- use of "best practicable technology" and at least secondary treatment of sewage at all publicly-owned sewage treatment plants
- use of "best available technology" for treatment of industrial wastewater
- freedom of the states to set more stringent permit requirements than EPA's maximum guidelines
- prohibition of toxic pollutant discharges in toxic amounts

The Municipal Section of the Permits Branch issues permits for public treatment facilities while the Industrial Section issues permits for commercial and specialized outfalls. In addition to their technical and administrative functions, both sections provide consultation to state agencies, municipalities and industries. The Toxics Control Section develops toxicity limitations for NPDES permits in line with state water quality standards. The Section helps state agencies address toxics concerns, and it works with municipalities and industries to reduce the toxicity of effluent. The Section also oversees municipal pretreatment programs. The Administrative Issuance Section recommends and implements actions necessary to maintain permit issuance conformity with agency goals and objectives. The Section recommends referral to the Enforcement Branch when conditions warrant and is also responsible for the issuance of public notices for NPDES permits.

The Enforcement Branch monitors NPDES permit compliance through scientific and administrative means, including self-reporting data from permittees, as well as through

active field investigations of permitted discharge sites. Data on permit requirements and compliance is managed with an EPA database known as the Permit Compliance System (PCS). Compliance staff review and verify all technical and economic data that will be used in enforcement actions or to initiate legal proceedings against an alleged violator. This group also manages the review, evaluation and resolution of permit violations.

While all of the activities described so far are based within the Region 6 Water Management Division, it is EPA's Environmental Services Division that oversees all ambient and source-related monitoring programs (although EPA generally conducts little ambient water monitoring). The Division's Surveillance Branch coordinates these monitoring efforts in Texas and the region. The Environmental Analysis Section provides oversight of state water quality monitoring and also conducts its own monitoring as needed. State monitoring data is sent to the Section to be added to the Region 6 STORET database. The Facilities Compliance Section performs monitoring and investigative activities at permitted facilities.

The Construction Grants Branch of the Water Management Division supervises two financing mechanisms for local sewage treatment projects: a federal grant program delegated to the states and a revolving loan fund which allows states to make low-interest loans to local governments. These programs are administered by the Texas Water Development Board in Texas, with TWC reviewing and approving all project plans and specifications. The federal construction grants can cover up to 75% of the cost of planning, improving or building sewage treatment plants and sewers. Amendments in 1977 authorized grants covering up to 85% of construction costs if the facility will use innovative or alternative wastewater treatment processes and techniques. While the 1977 amendments delegated the grant program to the states, Congress still must determine the distribution of grant funds among the states. The primary duty of each state is to rank potential projects based on the severity of the pollution problem, the population served, and other factors. The highest priority projects go to EPA's Region office for final review and funding approval. The grant program will soon be phased out and replaced by the state revolving loan funds, which already are operating. These loans also support local treatment facility improvements. Any construction work which is financed through these EPA programs must be consistent with water quality management plans prepared under the Clean Water Act, with special emphasis on regionalization of treatment capacity. Aside from financing guidance, the Construction Grants Branch also provides technical assistance to state, regional and local agencies and internal assistance to the Water Quality Branch. Areas of expertise within the Branch include innovative/alternative treatment systems, conventional and advanced processes, sludge management, and land acquisition and facility relocation.

Finally, EPA provides several types of federal funding support for development of state and local pollution control strategies. As the administrator of EPA's Water Quality Management Program, the State Programs Section provides general guidance and assistance to state agencies such as the Texas Water Commission. The Technical Section offers its expertise in various specialized areas of water quality management, including standards development, permitting and monitoring. Through these cooperative

EPA/state efforts, agencies such as TWC are able to develop comprehensive management programs for water quality protection and enhancement.

Texas Water Commission (TWC)

The Texas Water Commission is the lead state agency on water quality matters. The Texas Water Code authorizes TWC to adopt state surface water quality standards and other rules necessary to protect the state's waters, as mandated by the federal Clean Water Act. The Water Code states that:

> It is the policy of this state and the purpose of this subchapter to maintain the quality of water in the state consistent with the public health and enjoyment, the propagation and protection of terrestrial and aquatic life, the operation of existing industries, and the economic development of the state; to encourage and promote the development and use of regional and areawide waste collection, treatment, and disposal systems to serve the waste disposal needs of the citizens of the state; and to require the use of all reasonable methods to implement this policy.

Agency policy, implementing rules, and regulatory decisions are made by the three-member Texas Water Commission. The Commissioners are appointed for six-year terms by the Governor with the advice and consent of the Texas Senate. Point source regulatory efforts are the responsibility of TWC's Water Quality Division, which is one of six regulatory divisions within TWC that report to the agency's Executive Director. The Division's Water Quality Standards and Evaluation Section oversees the development of state water quality standards and supervises the state water quality monitoring network. The Wastewater Permits Section manages the discharge permitting process for municipal and industrial sources. The Wastewater Enforcement Section monitors these discharge facilities and carries out enforcement steps as needed. TWC's Field Operations Division supports the point source permitting and monitoring program through its network of 15 District offices across the state. The District 7 Office is based in Houston, as is the TWC analytical laboratory. TWC is currently expanding its laboratory capacity and moving the facility into the same building that houses the District 7 Office. This will allow closer contact between lab personnel and field staff to coordinate routine work, special studies and field methods.

The Water Commission takes the usual approach to point source regulation that has been implemented across the nation over the last two decades. First, it develops surface water quality standards which formalize the state's objectives by defining the desirable water uses in particular stream segments and the general and numerical criteria that must be met to maintain those uses. Next, it develops and implements pollution control strategies, including permitting of point source discharges, that will help to insure attainment of state water quality objectives. The rigidity of permits in a segment is based

on the sensitivity indicated by the water quality standards. Throughout the process, the agency monitors both in-stream water quality and the quality of effluent from point source discharges. This field work enables the agency to take enforcement action against unacceptable discharges. It also helps TWC to evaluate the appropriateness of its existing water quality standards and make needed adjustments. The standards are reviewed and, if necessary, revised every three years as required by the Clean Water Act. This process includes public hearings and official responses to comments received. The new standards, once approved by the U.S. Environmental Protection Agency, are published in the Texas Administrative Code.

Since 1988, the standards have included an "antidegradation" policy that spells out how the Commission will proceed when presented with proposed actions that would increase pollutant loads to state waters. The policy mainly focuses on discharges that have the potential to impair existing stream uses or water quality, but it also calls for cost-effective and reasonable Best Management Practices to address nonpoint sources of stream degradation. The antidegradation policy is designed to provide three increasingly stringent "tiers of protection" for state waters. The first tier requires that existing uses be maintained and protected. The second level calls for the protection of actual water quality where that quality exceeds normal fishable/swimmable criteria. Significant reductions in water quality are only allowed if necessary for "important social and economic development." The third and most protective tier safeguards the state's highest quality waters, which are identified as "outstanding national resource waters." These are located within or adjacent to national parks and wildlife refuges, state parks, wild and scenic rivers designated by law, and other designated areas of exceptional recreational or ecological significance. No reductions in the quality of this water is allowed. Christmas Bay would seem to qualify for this status in two ways: as the site of the Brazoria National Wildlife Refuge and as a "designated area" under the Texas Coastal Preserve program.

TWC's discharge permitting is coordinated with EPA in several ways. First, under an EPA grant, the Water Commission writes a draft NPDES permit for smaller discharges regulated by EPA. TWC does this at the same time that it is conducting its own technical review of the application and developing a draft state permit. In cases where EPA writes its own NPDES permit, TWC still can provide data on the quality and characteristics of the receiving waters. EPA permits also must be consistent with TWC's Water Quality Management Plan for the state, and the resulting discharge must not undermine state surface water quality standards. TWC certifies that these requirements have been met by EPA by reviewing each NPDES permit and issuing a state certification, conditional certification, or denial. Finally, EPA's permitting staff utilize wasteload evaluations performed by TWC for certain stream segments.

TWC has developed internal standards and procedures for implementing the state water quality standards through its own point source permitting process. While it still must evaluate applications on a case-by-case basis, TWC has attempted to create a consistent approach and framework for permit evaluation. This effort has included the preparation of guidance documents for internal and external use. TWC's technical review period for

new permits starts with a site-specific assessment and an examination of background and upstream loads. This initial phase provides the first indication of how the draft permit will need to be written. The decision on the need for an assessment is made in Austin by the Wastewater Permits Section, but the District always has the option of doing one on its own if it is concerned about the receiving waters or particular discharges. Although the District has only limited time and resources to do this type of study, headquarters staff find these field assessments to be extremely helpful. Field staff have extensive training and assessment procedures are well-established to insure that consistent and reliable biological methods are used.

Technical staff examine the in-stream uses, analyze potential impacts of the discharge, consider the applicability of the antidegradation policy, and begin to develop appropriate effluent limitations based on their findings. They also may have considerable information to work with if a wasteload study has ever been done for the relevant segment. Computerized stream models are used to evaluate discharge impacts based on the nature of the effluent and the receiving waters. Field staff conduct site inspections and examine the precise location of the proposed discharge. They also note any problems with the application and provide comments on the draft permit. TWC's regionalization policy requires that the staff highlight opportunities for consolidation of wastewater treatment. TWC's technical reviews increasingly include a toxicological analysis to pinpoint any possible threats to human health or fish and shellfish sanitation from effluent sources. The staff also consider organics and metals in the effluent, although no hard data may be available in the case of a new discharge. If toxicity remains a concern, then TWC can require quarterly or semi-annual testing once the facility is operating. This is usually reserved for major industrial outfalls and domestic plants discharging at least 1 million gallons per day. The objective is to study the beneficial effects of dilution and determine whether water quality standards are at risk. The decision to impose chemical or biological limitations on a major discharge also is a risk-based decision for agency staff. Based on this comprehensive analysis, the permit staff bring the review procedure to a close by exploring treatment system options. Any of the staff's preliminary conclusions may be contested or revised during the public hearing phase.

Upon receiving an application, the Permits Section has 75 working days to prepare a draft permit for the Commission. This period actually must be shortened by approximately 10 days to allow time for inter-agency, intra-agency and District comments. The deadline can always be extended at the request of the applicant, and the clock is put on hold whenever the staff needs additional information. Each industrial engineer within the Permits Section prepares about 30 draft permits a year, while a municipal engineer writes approximately 85 annually. TWC's permit review process constantly evolves, especially after the adoption of new water quality standards and additional technical requirements. Permitting staff note that the process will have to be updated again prior to NPDES delegation from EPA.

Once a permit is issued, TWC monitors the effluent periodically and also receives mandatory self-reporting data from the permittee. The Statewide Water Quality

Monitoring Network keeps track of in-stream quality using permanent stations and random samples. TWC maintains a long-term monitoring station in Christmas Point. This location is sampled annually for a variety of chemical parameters and for fecal coliform bacteria. State monitoring data is forwarded to EPA for entry into its STORET database. Summaries of this data are compiled every two years and published by TWC in the *Texas Water Quality Inventory.*

TWC staff have between 4000 and 5000 discharge permits to monitor in Texas at any given time. Staff attempt to make an annual compliance inspection of each facility. Although the permittee can anticipate when it is time for the yearly TWC visit, he is given only a few days' notice, which is not enough time to correct or hide major violations. But these routine visits are announced to give facility managers reasonable time to arrange their schedules and compile the necessary operational records for TWC inspectors. Surprise inspections normally are reserved for follow-up investigations at problem sites. During either type of site visit, TWC staff can quickly spot operational or maintenance problems, and solids or other visual signals may be evident in the effluent.

The self-reporting system allows an automated approach to detecting violations. A computer search of permittee data identifies permit parameters that have been exceeded by 40% or more for four consecutive months. This type of work can be done in Austin, as opposed to violations detected through field investigation. Enforcement hearings are mandatory for permit holders who are substantially out of compliance for four consecutive months. These are conducted by TWC's Office of Hearings Examiners and can result in a Commission order or an administrative penalty. In the case of a less significant violation, if efforts to resolve the matter at the District level are not successful, then the case is referred to Austin enforcement staff for formal action.

Such referrals to TWC's Wastewater Enforcement Section are known as Enforcement Action Requests. Aside from the District offices, these requests are received from elsewhere in the agency and also in less formal fashion from other agencies and private citizens. A coordinator is assigned to each case that requires investigation. The staff begin by studying the history and performance records contained in the facility file. Next, they examine past self-reporting data to determine whether the violation is part of a chronic pattern or only a recent occurrence. If the problem cannot be resolved through a straightforward Notice of Violation letter, then an informal "pre-hearing" session is scheduled with the permittee to gather information. During this meeting, the nature and cause of the problem is discussed, and the permittee is told where the enforcement action is headed -- anywhere from additional paperwork requirements to penalties and major mitigation. This meeting also leads to preliminary technical recommendations and the identification of any studies that should be required of the permittee, such as a groundwater contamination study.

After the investigative work is completed, a conference is held between TWC enforcement, water quality and legal staff. The investigation and conference discussion result in a report to the Executive Director. This report classifies the violation as extreme, moderate or minor. Factors that affect this classification include the "extent and

gravity" of the situation, as indicated by the degree of departure from TWC rules, and the impact or hazard it created, as documented through fish kill investigations and similar studies in the receiving waters. The conference participants may recommend that administrative penalties be assessed as high as $10,000 per day. The actual amount is determined using a matrix that allows some flexibility in the size of the penalty based on certain factors. Specifically, the penalty may be adjusted upward as much as 20% based on:

- a history of non-compliance
- the degree of culpability (the permittee's ability to prevent the violation)
- the economic benefit (the "profit from polluting")
- "as justice may require" to deter future violations (this is based on the attitude and cooperativeness of the permittee, but it is rarely used because it is subjective)

The administrative penalty also may be adjusted downward as much as 20% based on the good faith efforts of the permittee before and after the violation occurred. The Executive Director's report contains the final penalty amount as recommended by the staff. TWC also has the option of using "stipulated" penalties. These provide a positive incentive for compliance by making it possible for the administrative penalty to be reduced based on the violator's performance in resolving the problem. It is up to the permittee to accept this alternative. His liability may be less under this approach, but the penalty is automatic if his performance is not up to par. This option also is more of a burden for enforcement staff because it requires more monitoring and paperwork than a basic penalty. If the Executive Director approves the staff enforcement report, then the Legal Division prepares a draft of the proposed Commission order. A settlement conference is then held with the permittee, in which he must agree to the final penalty amount and the required compliance steps. A mutually acceptable settlement is the key since the overriding goal of the enforcement process is correction of the violation, preferably by the party that caused it. A successful settlement also avoids costly and time-consuming litigation. Following the Commission's approval of an order, it is the enforcement staff's responsibility to track compliance.

The Water Commission coordinates its enforcement efforts with EPA through a state/federal enforcement agreement. In addition to written agreements, EPA and TWC staff communicate informally on compliance matters. TWC also works periodically with the Railroad Commission of Texas, the Texas Department of Health, the Texas Parks and Wildlife Department, the various river authorities, and local districts.

TWC has one other tool that helps to encourage dischargers to anticipate their expansion needs and maintain adequate treatment capacity. This is the agency's "75/90" rule. Under this rule, discharge flows are monitored to detect when certain critical thresholds have been reached. When a plant surpasses 75% of its permitted flow for three consecutive months, the permit holder must begin long-term expansion planning. This

allows adequate time to explore financing options, including federal grants and low-interest state loans through the Texas Water Development Board. The rule's purpose is to promote advanced planning, avoid plant overflows, and prevent hasty and costly treatment plant construction. In extreme cases where effluent flow goes above 90% for three months, the permittee must begin the expansion process immediately and arrange rapid financing. This regulatory strategy especially benefits cities by forcing them to improve their long-range planning of municipal treatment capacity.

Railroad Commission of Texas (RRC)

The Railroad Commission is an agency unique to Texas. Although the Texas Water Commission is recognized as the lead state agency for water quality protection, the RRC has specific responsibility for prevention of surface and groundwater pollution from activities associated with oil and gas development. Pollution prevention is only part of the RRC's overall regulation of the oil and gas industries in Texas. It also oversees oil and gas production, transportation and conservation.

The Texas Water Code authorizes the RRC to issue permits for wastewater discharges resulting from the exploration, development or production of oil and gas. Discharges approved by the RRC must not reduce the quality of the receiving stream below the surface water quality standards established by the Texas Water Commission. The aim of the RRC's permitting program is to prevent and abate oil and gas-related water pollution through point source regulation. Each issued permit must contain reasonable conditions to keep the waste of oil, gas and geothermal resources from reaching or impairing the state's waters.

The agency is guided by the three-member Railroad Commission, whose members are elected on a statewide basis. The Oil and Gas Division is the largest branch of the agency, and it is responsible for point source permitting and enforcement. The Director of the division is appointed by the Commission. The RRC has 12 districts across the state. Christmas Bay is located within District 3, which is based in Houston and covers the southeastern portion of the state along the upper Texas coast.

In addition to its permitting power under the Texas Water Code, the RRC has authority to adopt and enforce rules and orders under the Texas Natural Resources Code. RRC rules appear in the Texas Administrative Code, and the RRC also publishes them in *Statewide Rules for Oil, Gas and Geothermal Operations*. Like other state rule-making agencies, the RRC adopts its rules according to the Administrative Procedures and Texas Register Act. Agency rules are updated as needed, and all of the existing rules relating to water pollution were revised at some time during the 1980s. Statewide Rule 8, entitled "Water Protection," is the RRC's primary statement of its water pollution prevention strategy. Section 8(b) states that "no person conducting activities subject to regulation by the Commission may cause or allow pollution of surface or subsurface water in the state." The rule also contains the necessary provisions for RRC permitting and enforcement of point source discharges.

Permit applications are submitted to the Commission in Austin and to the appropriate District Office. The Director of the Oil and Gas Division may require an applicant to supply whatever technical information is needed to confirm that the proposed discharge will not cause water pollution. The applicant must notify all surface owners of waterfront tracts between the discharge point and one-half mile downstream. If any of these tracts lie within the corporate limits of a city, then the city clerk or other official also must be notified. In certain cases, the director may require that a river authority or other interested groups receive notice as well. The Texas Parks and Wildlife Department (TPWD) also reviews and comments on applications when it has concerns. Those agencies and individuals who were notified have 15 days from the date of the application filing to register a protest of the proposed action with the Commission. The Director may administratively approve an application which is not contested. But if the Director decides against administrative approval, or if protests are received, then the applicant may request a public hearing that will allow a hearings examiner to review the permit request. The Director may order a public hearing independently if he determines that this will best serve the public interest. After the hearing, the hearings examiner recommends a final action by the Commission. (For renewals of existing permits, no public notice of the application is required, and the Director may administratively approve the request. The conditions for a public hearing are the same as above.)

The RRC has adopted a new Statewide Rule 77 that the agency believes contains the necessary provisions to allow it to assume NPDES permitting authority from the U.S. Environmental Protection Agency for oil and gas-related discharges. One significant feature of this rule, entitled "Discharges to Waters of the State," is that it would require more comprehensive monitoring of permitted discharges by the RRC. The rule will take effect upon EPA delegation of NPDES authority to the state of Texas, which is expected at some future date pending further negotiation with EPA.

The RRC's current field monitoring program emphasizes random sampling, with a goal of visiting each permitted site at least once a month. Under an Interagency Notification Plan for Pollution Response drafted by the Texas Parks and Wildlife Department, TPWD field staff assist with monitoring of discharge sites and refer any apparent problems or violations to the RRC. The RRC conducts field investigations in response to these referrals and any other complaints it receives. In addition to these measures, the RRC requires dischargers to monitor for oil and grease content and submit quarterly reports to the District Office. Any irregularities detected through this self-reporting system also may trigger an RRC site inspection.

The Texas Natural Resources Code outlines the penalties and remedies for violations of RRC rules and permit conditions. The RRC's first enforcement step is to send a notice of violation letter. This letter explains the nature of the problem to the permittee, provides instructions for prompt compliance, and alludes to more substantial enforcement measures should the violation continue. Like TWC, the RRC is authorized to assess administrative penalties of up to $10,000 per day to resolve violations. Factors that may influence the actual size of the penalty include the past performance record of the permittee, the severity of the current violation, the public hazard involved, and the good

faith efforts of the permittee to correct the problem. In the most serious cases, the RRC can request that the Texas Attorney General's Office initiate a civil action to recover penalties or obtain an injunction. If an individual willfully commits a violation, or does so with criminal negligence, then criminal proceedings also are possible. The RRC also has power under Statewide Rule 8 to modify, suspend or terminate permits for good cause after public notice and a hearing opportunity. Rule 8 describes six specific factors as constituting "good cause":

- pollution of surface or subsurface water is occurring or is likely to occur as a result of the permitted operations
- waste of oil, gas or geothermal resources is occurring or is likely to occur as a result of the permitted operations
- the permittee has violated the terms and conditions of the permit or Commission rules
- the permittee misrepresented any material fact during the permit issuance process
- the permittee failed to give the notice required by the Commission during the permit issuance process
- a material change of conditions has occurred in the permitted operations, or the information provided in the application has changed materially

The Director of the Oil and Gas Division has some flexibility to respond to unusual situations. He may issue an "emergency permit" valid for up to 30 days if he determines that "expeditious issuance of the permit will prevent or is likely to prevent the waste of oil, gas or geothermal resources or the pollution of surface or subsurface water." Emergency requests are made through the District Office and no notice is required. For extreme emergencies, the Director may accept a verbal application, verbally authorize an action, and issue a written permit after the fact. The same rules for permit modification, suspension or revocation apply. The Director also is authorized to issue a "minor permit" when he finds that only a minor amount of wastewater will be discharged and it will not impair water quality. Minor applications are submitted to the District Office and require public notice unless the Director waives this rule. Minor permits also are valid for 30 days. When a minor permit is issued without notice, the Director may modify, suspend or revoke the permit at any time for good cause without notice or hearing.

The RRC maintains a Memorandum of Understanding (MOU) with TWC and the Texas Department of Health, as required by the Texas Solid Waste Disposal Act. This mandate from the 67th Legislature in 1981 was intended to clarify agency jurisdictions in waste management and regulation, as well as to promote efficient administration and avoid duplication of efforts. The current MOU was signed in December 1987 and replaced the original MOU of January 1982. In between the two, the agencies gained experience in working under the MOU and determined where further improvements and coordination were needed. The Legislature also added new clarifying language to the agencies'

enabling statutes. In addition to the MOU, the RRC also coordinates its activities with those of other agencies through its representation on the Texas Groundwater Protection Committee, which developed a statewide Groundwater Protection Strategy, and the Toxic Substances Coordinating Committee, which wrote an inter-agency coordination plan to address toxics pollution and regulation.

Management Evaluation Findings

1. *Agency managers are deeply concerned that the combination of lean government budgets and expanding regulatory mandates for their agencies will create an unbearable administrative burden, force undesirable trade-offs, and -- worst of all -- threaten twenty years of water quality progress achieved through effective point source regulation.*

   A basic water quality "infrastructure" has been built over the last two decades, resulting in significant momentum toward cleaner water. Agency managers emphasize that the existing procedures for development of water quality standards, permitting of discharges, and monitoring and enforcement to insure compliance are in place, functioning and largely successful. (One significant exception, say critics, is the Texas Railroad Commission's "tidal disposal permits" for produced waters in coastal streams, bayous, and other areas with limited flushing.) Their greatest fear is that new areas of regulation, while welcome and much needed, will divert attention from and even lead to cutbacks in the current water quality infrastructure.

   Agencies already have had to streamline their operations in response to earlier state and local budget shortfalls. They are concerned that they will not receive sufficient funding and staff for these new tasks and will be forced to shift resources from existing agency functions. They point out that many of the latest programs will require the hiring of specialized staff, not to mention the additional record-keeping and administrative demands involved. Increased complexity in the laws and regulations also tends to add to the time pressures already faced by technical staff.

   The Texas Water Commission's District staff cite one example of potential slippage. Each year they must complete a certain number of inspections as a condition of their federal funding from the U.S. Environmental Protection Agency. The Water Commission has attempted to go beyond these minimum federal requirements and achieve 100% inspection coverage of all permitted facilities. However, the District staff estimate that they went down to 75% coverage during 1990 in anticipation of an expanding workload. The staff also emphasize that they must always use their resources first to complete their mandated tasks -- to "make the numbers," so to speak. Any remaining time and funds can then be devoted to follow-up work, in-depth studies, and complaint investigations. It is the "little things" the staff manage to do that will be squeezed out if their worst fears about agency funding are confirmed.

The Water Commission's Wastewater Permits Section also had a busy year in 1990. Due to the permit workload, a conscious decision was made to start carrying a backlog of applications to be reviewed. The Permits Section did not believe that it was being as thorough in its permit reviews as it needed to be, and this was a source of frustration for the staff. While promptness is still a priority, the staff have been instructed to emphasize high-quality permits over timely but inadequate permits. According to the permit staff, the area that will suffer most under the backlog is permit renewals. They do not expect any serious problems except that the longer it takes to process a renewal, the longer those facilities will be operating below the latest standards. The key for management is that renewal applications are predictable -- they come in as existing permits near expiration -- but applications for new permits cannot be anticipated. The underlying concern is that such a backlog had to be accepted even *before* NPDES delegation to the Water Commission.

While EPA Region 6 staff appreciate these resource limitations, they say that NPDES delegation will require that TWC substantially increase its permitting, compliance and enforcement staff. They also expect the effectiveness of NPDES permitting to increase after delegation since TWC has considerable experience in issuing permits to and monitoring a variety of dischargers. TWC staff have noted that consolidation of permitting authority under TWC will simplify the process for the regulated community by eliminating the need to apply to both TWC and EPA. Region 6 staff point out that EPA will continue to perform a regulatory compliance review on every discharge permit that the TWC intends to issue. EPA will also provide NPDES enforcement support, primarily by continuing to conduct its own spot inspections and by initiating enforcement actions in cases where state action has not been appropriate or effective.

[EPA Region 6 staff, after reviewing the draft of this report, emphasized that they disagree with this finding. They noted: "There have been increasing resources devoted to nonpoint source programs in recent years, but these have not been provided at the expense of resources traditionally available for management of point sources." EPA staff concluded that there is an apparent difference of opinion between their position and the concerns of staff at other agencies about future trends in funding and legislative support.]

2. *Regulatory agencies are worried about deterioration in the quantity and quality of water quality data.*

Texas Water Commission staff are increasingly having to make regulatory decisions without a comfortable base of supporting data. In fact, some local pollution control officials question how the Water Commission can make judgements on water quality with current data inadequacies. Reductions in federal funding and mounting pressures on state legislatures have constrained data and research budgets and even led to cutbacks in some areas. Agency managers faced with tight budgets of their

own have had to make tough choices. Data programs have not fared well under such forced priority-setting.

However, managers are now realizing that such neglect of data collection and analysis programs has been costly. Data inadequacies are reaching a critical point in some agency operations. In response, TWC's Wastewater Permits Section now includes many more questions on its application for discharge permits, including numerous items that require much more documentation than in the past. This has shifted the information and data-gathering burden from the permitting agency to the applicant. This change makes the process more difficult for new applicants who do not have existing performance data to submit as would an applicant for renewal. But EPA supports such efforts to "internalize" the costs of pollution prevention among those who potentially contribute to the problem. TWC's Permits Section also welcomes and utilizes any background information that District staff can provide, although their ability to contribute in this way may be limited, as noted above. Despite criticism from environmental advocates, the permit staff say that they are maintaining a "conservative" approach -- no permitting standard is lowered unless the applicant can provide convincing data and field testing of his own.

While managers sometimes accuse their technical staff of never being satisfied with any amount of data, the managers agree that there is a definite need, especially in newer and more complex areas of regulation such as toxics, advanced wastewater treatment, and nonpoint source pollution.

3. *Some critics believe that there are inherent weaknesses in traditional engineering-based approaches to point source discharge permitting which undermine environmental protection objectives.*

These critics emphasize the differences between biological methods, which are more dependent on field investigations, and "arm chair," engineering-based reviews of proposed discharges. The latter method relies on engineering models which analyze mixing zones, wasteload evaluation results, and other technical information. Water quality staff then use the models as an analytical tool to assess and predict stream conditions and discharge impacts. While the computer models used by permitting agencies are increasingly sophisticated, the critics point out that the models do not include critical parameters such as nutrients and toxicants and therefore do not adequately predict biological impacts. They say that, under current regulatory practices, it is common for permit criteria to be created and followed, yet the receiving waters still demonstrate moderate to severe impacts. A related problem is that the application of water quality standards using only a few select parameters has not prevented the degradation of receiving waters. The critics also target the lack of methods to determine cumulative ecosystem loadings for appropriate parameters.

Agency staff point out that the next best alternative to stream modelling would involve intensive field monitoring, which, as discussed elsewhere, is too costly to justify. Texas Water Commission staff note that while modelling is imperfect, it is

still predictive whereas monitoring is reactive and only reveals problems that already have occurred. And while inadequate monitoring limits the amount of empirical data that is available for use in the models, technical staff can take advantage of sampling data that permittees may be required to submit under the terms of their discharge permit. Wasteload projections prepared by TWC and other agencies also are helpful to the modelling process. However, critics maintain that the overriding problem with current engineering models is that they do not include all parameters that exert impacts in the actual receiving waters.

Given budgetary realities, technical staff must do what they can to build up a base of knowledge about a stream or water body. They admit that it is often a learning process. Over time, staff come to understand how a particular stream responds to discharges and what its limits are. Unfortunately, this is a prime example of what is lost through frequent staff turnover.

4. *There is broad agreement that stream monitoring is the most direct method for assessing water quality progress, but extensive monitoring is costly and difficult to defend in tight budgetary times.*

Each phase of the point source regulatory process -- from standard-setting to permitting to enforcement -- depends on field data to some extent. Texas Water Commission staff agree that existing monitoring efforts are clearly inadequate, and they have been hurt even more by recent cutbacks. The result is insufficient data to monitor trends, assess impacts, and draw scientific conclusions. Infrequent and spatially dispersed monitoring also limits TWC's ability to detect sudden contamination of water bodies. The agency must rely on its self-reporting system, under which permit-holders are required to report unintended, unpermitted discharges. This is not a guaranteed system, and its use for enforcement purposes underscores the importance of receiving reliable data from permittees. TWC's enforcement staff add that, without adequate monitoring data, it makes it more difficult for them to trace and prove negative stream impacts from an alleged violator. Local pollution control staff emphasize the need to have a solid base of evidence for successful prosecution of violators.

A key obstacle to expanded monitoring is simply its cost. Regular monitoring is a time-consuming and labor-intensive process. These factors are exascerbated by the sheer size of TWC districts and the number of streams and water bodies that must be covered by limited personnel. A more formidable barrier, according to agency managers, is the very nature of the program. Stream monitoring is a long-term, esoteric agency function with ambiguous benefits. This makes it very difficult to defend before a Legislature that is already under extreme budgetary pressures. Legislators quickly want to know how a program contributes to solving some problem, but any discussion of monitoring and its uses requires a lengthy, and probably unsatisfying, explanation. Even more damaging is the fact that it may take five to ten years, or even longer, for a body of monitoring data to become useful. Under these circumstances, stream monitoring programs are vulnerable to quick

budget cuts and diminishing political support. Yet critics maintain that poor system design is as much a factor in inadequate monitoring as is diminished funding support. (For example, they note that current monitoring strategies do not allow for effective tracking of cumulative ecosystem impacts related to particular parameters.)

The dilemma is that agency staff view stream monitoring as the best, most direct way to gauge the effectiveness of water quality programs. But current levels of monitoring often do not yield sufficient data to allow such judgements. Faced with these difficulties, agencies must look to other measures of progress. Self-reporting data is a starting point, as mentioned above. Agencies also try to tap into the data resources of other agencies and institutions, such as universities. There are also gross indicators of water quality, such as reductions in fish kills or even the return of fish to a water body that previously had been too polluted to support aquatic life. In addition, field staff can make certain preliminary judgements about water quality just by looking at a water sample. More sophisticated options include the biological analysis of certain sample species to check for the presence of contaminants, a method increasingly being used in tidal streams. Unfortunately, while biological/ecological analysis can be cheap compared to chemical analyses, it also can be time-consuming for field personnel. In addition, while it often is a very effective indicator of impacts to receiving waters, biological sampling remains a *gross* indicator because findings in the field are not easily related to individual permit criteria. Besides its own field techniques, TWC is also exploring more effective use of river authorities and other existing entities in the data collection process. Finally, illegal discharges can normally be discovered through fish kills, citizen complaints, and sometimes by sheer coincidence in the field.

In addition to these efforts, an inter-agency group in Austin is exploring the possibility of instituting standardized sampling methods and coordinated staff training between relevant state agencies. This group includes representatives of TWC, the Texas Parks and Wildlife Department, the General Land Office, and the Texas Department of Health, and the EPA also is sitting in. Staff emphasize that coordination of sampling always has been difficult because of the different data needs and regulatory concerns of the various agencies. For example, TPWD tends to do more random sampling compared to TWC's fixed-location monitoring. TWC also focuses on water quality itself while other agencies are more concerned with the impacts of water quality variations. Nonetheless, the Water Commission has been able to pattern some of its gear and techniques after those of TPWD. The hope is that this standardization of techniques and training will promote greater sharing of data and inter-agency assistance in sampling.

Some people place great faith in the ongoing development of a statewide citizen monitoring network under the supervision of the Texas Water Commission. It is seen as the best opportunity to increase the flow of valid data from the field. By training citizens to do voluntary field work, TWC officials believe that they can take advantage of local knowledge of waterways and increase the agency's visibility through citizen involvement. But some staff are hesitant about citizen-based

programs, primarily for the same types of reasons that undercut monitoring in the state budget process. Effective monitoring requires a long-term and unflagging commitment. Each new monitoring point that is established must be maintained and checked regularly over a period of years for the resulting data to be meaningful. Aside from the question of motivation, these staff members are concerned that volunteers will lose interest if rewards -- in the form of improved stream conditions -- are not soon evident, for whatever reason.

EPA staff advise local governments to protect their own interests by doing as much local monitoring as they can afford, especially upstream and downstream from potential problem discharges. Rather than rely on the irregular sampling of other agencies, cities should aggressively monitor on their own to protect their investments in treatment plants and technology and to establish the need for pretreatment of certain discharges and for enforcement action against others. EPA also points out that state water quality agencies can "internalize" the cost of monitoring by requiring municipal and industrial dischargers to handle more of the burden themselves, something that TWC already does through its permit conditions.

[EPA Region 6 staff, following their review of the draft of this report, expressed concern about the "strong emphasis on inadequate monitoring data as a primary regulatory issue." They offered the following comments: "We agree that more data is needed and will be useful in ultimately solving problems in the Armand Bayou and Christmas Bay Coastal Preserves. However, some of the problems and causes are fairly obvious, indicating that some corrective actions can and should be taken soon. We do not agree with a primary focus on monitoring needs at the expense of a more action-oriented focus."]

5. *There are clear opportunities for better coordination of point source regulatory efforts between state agencies and between state and local agencies.*

At the state level, the consensus appears to be that inter-agency coordination and communication was more effective under the former Texas Water Quality Board, one of the predecessors of the Texas Water Commission. All of the relevant agencies had representatives on this board, and they met on a regular basis. By comparison, agency staff indicate that communication between some key agencies is almost non-existent today. The use of inter-agency advisory committees on various projects and studies is one sign of improvement. There also is more attention to coordination of field activities, such as joint TWC/TPWD investigations of fish kills. But the difference remains that these contacts are sporadic and narrowly focused compared to the routine cooperation under previous arrangements.

A more fundamental problem at the state level, according to critics, is that there is a significant discrepancy between permit criteria of the Water Commission and the Texas Railroad Commission. They point out that discharges permitted by the RRC are not sampled frequently enough, receiving water impacts are not monitored, wasteload evaluations are not conducted, toxicity testing is not required, and

parameters other than oil and grease are not analyzed. The result, say the critics, is that receiving waters in the vicinity of produced water discharges routinely exceed water quality standards, leading to toxic impacts in a number of cases.

Potential coordination of monitoring, data-gathering, and enforcement efforts also appears to be lacking between the Texas Water Commission and local pollution control agencies. There is a clear overlap to the extent that the various agencies are monitoring and inspecting the same sites. Local agencies also base their enforcement actions on the requirements of state-issued permits. For this reason, TWC staff are concerned that they do not always receive notice of violations from local enforcement agencies. When agencies do refer violation cases to one another, it appears that they only intend to pass the enforcement work along, not work together on it. It is apparent that local pollution control agencies and TWC District staff prefer to resolve as many local violations on their own as they can. While this independence does not promote coordination, it does allow state enforcement personnel to reserve their energies for the major cases that cannot be handled locally. Finally, the Water Commission and EPA also would prefer to have greater access to the wealth of data collected by local agencies during their near-monthly sampling of permitted discharge facilities. Permitting and enforcement staff especially value the insights and field knowledge of local pollution control agencies.

Although the results of TWC water quality monitoring are sent to EPA for use in its STORET water quality database, agency staff believe that other aspects of TWC monitoring and EPA oversight could be coordinated more effectively.

6. *Some Texas Water Commission staff express concerns about the occasional permit case that is perceived by the public and the staff -- whether rightly or wrongly -- as being overshadowed by political considerations.*

Politics are an inevitable part of a permit issuance system that depends on a board of political appointees for final decisions. What worries some staff members are the damaging effects on morale that can result from controversial cases. Technical staff have obviously made a commitment to public service, but they can be lured away at almost anytime by the higher rewards of private-sector employment, especially in major job markets such as the Houston or Austin areas. It is feared that such frustration only contributes to the "brain drain" that already plagues many public agencies. What is notable is that these complaints appear to reflect a sincere concern for the agency's reputation before the public and a personal commitment to effective environmental protection.

The Water Commission's permit staff are more concerned about pressures they receive from citizens who are unhappy with the process. Too often TWC's critics do not seem to understand that the staff cannot hold up a permit -- they can only make recommendations to the Commissioners. Staff suggestions and the conclusions of the hearings examiner are not always heeded, but the staff takes heart from those instances where substantial changes have been made to permits based on staff input.

In addition, permit staff say they sympathize with the field staff, whose first concern is the difficulty of enforcing a borderline permit. When the staff sense that a controversial permit is going to be approved despite staff findings of potential significant impacts, they sometimes offer the Commission a minimum set of permit provisions that should be included in the event of an approval. In general, the staff emphasize that state and federal laws require them to write permits that will uphold state water quality standards. The new antidegradation policy contained in the water quality standards also constrains the Commission. Unfortunately, the staff often must deal with charges of incompetence from critics who rail against the alleged failures of TWC "bureaucrats." It is this emotionalism during and after hearings, and the lack of simple respect from some members of the public, that can undermine the enthusiasm of agency staff.

Staff also worry that the increasingly technical nature of the regulatory process creates another barrier between agencies and the lay public. As a result, agencies must devote more time to developing readable narratives and explanations of regulatory procedures.

7. *The authorization of administrative penalties for the Texas Water Commission was a significant accomplishment in itself, and the speedier imposition of penalties for discharge violations has proven to be an effective enforcement tool in many cases.*

Enforcement staff are pleased with their relatively recent authority to impose administrative penalties on point source violators. Prior to the authorization of these penalties in 1985, the Water Commission had only two options for dealing with violations: negotiate a compliance schedule and settlement, or initiate legal action against uncooperative, repeat, or large-scale violators. Both paths could be time-consuming and were vulnerable to stalling and delaying tactics. The process also depended on the voluntary cooperation of the violator. Only after giving the offender a chance to negotiate and be cooperative could TWC pursue legal action. At that point, of course, TWC was at the mercy of an overloaded court system and a state Attorney General's office with a substantial caseload of its own.

With its new authority, TWC now has a powerful tool to encourage more prompt compliance and meaningful negotiation. Aside from taking effect much faster than earlier enforcement remedies, administrative penalties are flexible. Penalties can be adjusted to reflect any extenuating circumstances surrounding the violation as well as good faith efforts on the part of the violator to resolve the situation. Stiff administrative penalties also draw attention, both from the violator and from the regulated community and the public. Local pollution control officials agree that administrative penalties give the state much more leverage in enforcement compared to their own reliance on lawsuits. Aside from the typical grinding pace of the judicial system, officials say that pollution cases are not receiving the preferential court scheduling that they once did. They note, however, that this sometimes can work to their advantage since companies may be motivated to settle quickly, resolve the matter, and limit their costs. But local pollution control officials still would

prefer even quicker resolution of state-enforced point source violations. Because of the continued emphasis on negotiation and cooperation, they are concerned that the enforcement process still takes time, especially when court action finally becomes necessary after unsuccessful negotiations.

Concerns also are heard about the "closed-door" nature of TWC compliance negotiations and settlement conferences. Some environmental advocates argue for a more open process, with earlier and more frequent opportunities for public input. As it stands, citizens and interest groups must wait for the matter to reach the Commission before they can have any official input. These critics complain that by this point the settlement often is effectively in place and only needs summary approval by the Commission. The public is at a great disadvantage by not knowing what issues were discussed during the negotiations and what conclusions already were reached. The burden is on the opposition to establish why the outcome of a lengthy negotiation and settlement should be revisited or further delayed. Despite these criticisms, TWC enforcement staff are committed to their view that contested enforcement hearings would not yield much different results. They note that TWC pursues clear enforcement objectives and places a high priority on mitigation. Most of all, they fear any added delay in gaining effective compliance.

TWC staff worry most about the small percentage of cases where administrative penalties are ineffective. These occur at either end of the point source spectrum: small towns that would only be devastated by a sizable fine, and major dischargers who are relatively unfazed by penalties that can only reach a maximum of $10,000 per day. Enforcement staff wish that they could boost the fines in these latter cases, and they are wary of the potential violator who, after weighing his relative costs, may conclude that he is better off paying the "price" to continue polluting.

Enforcement staff frequently hear the argument that money set aside to pay fines could be better spent on mitigation efforts to bring a discharge into compliance. While staff reject this reasoning, they are concerned that most of the monies collected through administrative penalties now go into the state's general revenue, with only a small percentage going back into enforcement. The staff would prefer to see more of the money channeled toward projects to benefit the local community that was impacted by the pollution, as well as for general environmental education.

8. *Streams, bays and estuaries are complex, dynamic natural systems, and regulatory agencies can never achieve perfect knowledge and understanding of them. This fact underscores the importance of prior research and problem identification to insure effective regulatory action.*

Agencies and their critics -- and even colleagues within the same agency -- sometimes disagree on even the most fundamental questions: In what ways do point source discharges impact natural systems? How effective are existing regulatory strategies in minimizing negative impacts? Is progress being made toward improved

water quality? Agency staff point out that even such crucial terms as "pollution" and "progress" are interpreted differently.

This is the challenging technical environment in which regulatory agencies must operate. Individuals within and outside the regulatory framework have varying levels of expertise and field knowledge. Where some people are unwilling to draw conclusions in the absence of sufficient data, others are quick to theorize about cause and effect and then demand regulatory action, despite criticism about oversimplification. It is this uncertainty and lack of consensus that is increasingly leading agencies (and others) to demand solid scientific support for regulatory policies and strategies.

Because different people have different ideas of what might be causing a pollution problem, a key first step must be intensive study to confirm specific problems that can be addressed effectively through regulation. Because of the way that agencies are organized, they also must know *who* should take action. For example, point source staff emphasize that they can only become involved if a permitted facility is behind the problem.

TWC staff confirm that the Bay system's complexity and dynamism also complicates the selection of sampling sites and frequency. Perennial disagreements over sampling strategy, combined with inadequate funding to allow coverage of all desired sites, makes advanced planning of monitoring efforts crucial.

9. *Aside from the economic incentives to "regionalize" wastewater treatment, agency staff emphasize the management benefits of plant consolidations.*

The Clear Lake City Water Authority and the Gulf Coast Waste Disposal Authority have spearheaded the consolidation of small treatment plants in the Clear Lake area. In addition to the potential economies and technical superiority of regional facilities, agency staff point to the management advantages of regionalization:

- better-trained, round-the-clock staffing at large facilities versus small domestic plants
- fewer total discharges into receiving streams, which automatically limits the number of locations where mistakes or unpermitted discharges can be made
- fewer facilities for regulatory staff to monitor, allowing better coverage of permitted discharges

These plusses take on even greater importance during times of restrained government spending. Texas Water Commission staff also emphasize that operators of sewage treatment plants across the state are continuing to upgrade their facilities and make them capable of advanced levels of treatment. Regionalization contributes

to this trend by encouraging the phasing out of older, inferior plants and the targeting of investment to state-of-the-art regional plants.

10. *Regulation of point source discharges is not a static process, so agencies must be flexible.*

    All phases of regulation -- including standard-setting, permitting, and enforcement -- must adjust to dynamic stream conditions, emerging pollution control technologies, and changing environmental objectives. Therefore, ongoing evaluations of the process should probably focus on how well and how quickly the regulatory agencies make such adjustments. A key factor is the quantity and quality of data and reliable knowledge that the agencies can tap to make intelligent adjustments. To the extent that agencies do not believe that they have adequate resources, such adjustment is hindered. Agency flexibility also depends on the ease of internal communication, especially from the field to headquarters. The Water Commission's permit staff emphasize that any special concerns raised by District personnel during the review process become priority items before a final decision is made.

    As another example of ongoing adjustment, the Permits Section points to the frequent revisions it must make to its discharge permit application form. The form underwent a major overhaul in 1988 after new, more complex state water quality standards were adopted. Another revision was needed just over a year ago to incorporate new informational needs, and another version of the application form is anticipated soon to reflect the latest NPDES requirements. Newer applications also inquire more extensively about existing service areas and nearby facilities to evaluate regionalization opportunities, which reflects an increasing policy concern for consolidation and efficiency in wastewater treatment.

    Flexibility appears to be greatest among local pollution control agencies since they can shift their enforcement staff and energies relatively quickly. This is a reflection of their limited role -- they are not saddled with permitting, standard-setting, or policy-making responsibilities.

11. *Agency staff are uncertain what impact the designation of Christmas Bay as a Texas Coastal Preserve may have on existing point source regulatory procedures in the watershed.*

    Staff are not sure whether Coastal Preserve status will lead to a restriction of activities, including point source discharges, which would normally be permitted. As mentioned earlier in this chapter, Christmas Bay would appear to have extraordinary protection from point source discharges under the antidegradation policy adopted by TWC in 1988 as part of it state surface water quality standards. One possibility is that permit application reviews and permit conditions will somehow become more strict within a Coastal Preserve -- a change that some staff would favor. It is also possible that current opportunities for resource agency comments on permits might somehow be formalized, perhaps to highlight the input

of the Texas Parks and Wildlife Department, with its habitat protection perspective. These are the types of issues that are already being discussed between the Texas Water Commission and the Parks and Wildlife Department. In the meantime, TWC permit staff emphasize that under no circumstances should a point source discharge harm aquatic life. However, critics maintain that this happens frequently under current permitting methods. They argue that biological impacts, which are especially critical in estuaries and coastal waters, cannot be addressed adequately with engineering models, a few traditional standards and permit criteria, and a lack of cumulative impact assessment.

Most staff agree that it is difficult to comment on the Coastal Preserve program when they know so little about it. Agency managers predict that, at least in the short run, the designation will have little effect on their day-to-day operations and existing programs. They are eager to see what the Parks and Wildlife Department will propose in its draft management plan for the Preserve. Then they will be able to evaluate the Coastal Preserve concept more carefully. In the meantime, some question the value of such a limited preserve area. They also wonder whether upstream activities will be impacted by the new program if the quality of the flow entering the preserve is to be a priority.

Some see the Coastal Preserve program as an opportunity to focus greater attention on discharge problems at oil and gas sites. TWC's District staff see it as yet another layer of protection for Christmas Bay. They also are very confident that Christmas Bay will remain free of discharges after the recent controversy that surrounded a permit request there. The application spurred a grass-roots "Save Christmas Bay" campaign in Brazoria County that received support from elected officials and local businesses, who displayed signs of support in their windows. Area residents and coastal interests demonstrated their ability to mobilize and voice their opposition to Bay discharges. Staff also believe that other forms of pollution, especially from nonpoint sources, are more of a threat to Christmas Bay than existing effluent released into the Bay's tributaries.