

CHAPTER ONE

MANAGEMENT OF POINT SOURCES OF POLLUTION

CHAPTER OUTLINE

Regulatory Issues

- Municipal wastewater discharges
- Industrial wastewater discharges
- Uncontaminated stormwater runoff from industrial facilities
- Discharges from oil and gas drilling

Federal Legislation

- Federal Water Pollution Control Act
- Water Quality Act
- National Environmental Policy Act

Federal Regulatory Agencies

- Environmental Protection Agency

Texas Regulations

- Texas Water Code
- Texas Natural Resources Code

Texas Regulatory Agencies

- Texas Water Commission
- Texas Railroad Commission
- Texas Water Development Board

Local Regulations

- Industrial pretreatment requirements

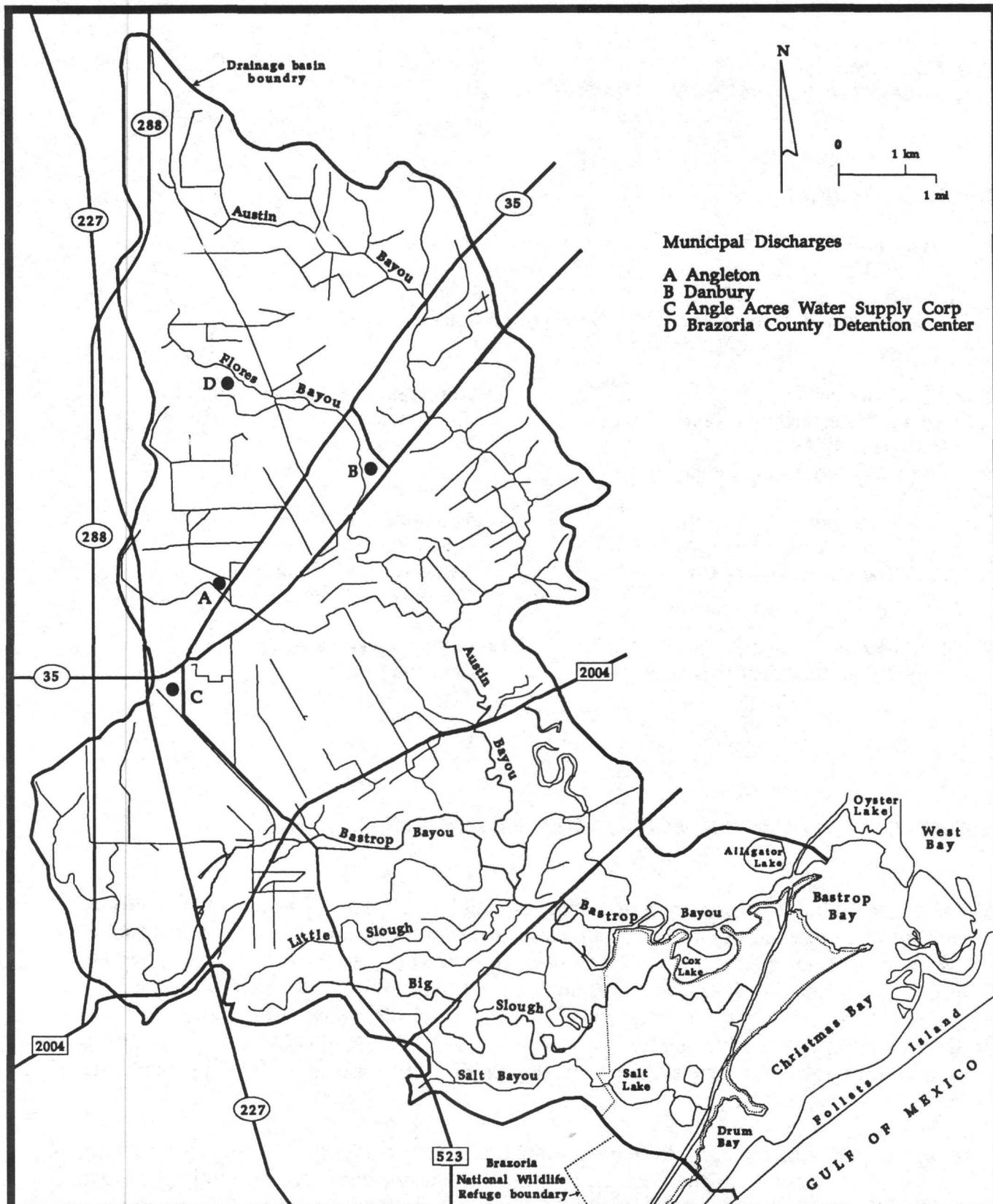
Local Regulatory Agencies

- Brazoria County
- City of Angleton

EXISTING AND POTENTIAL ENVIRONMENTAL IMPACTS

Point source pollution emanates from a single defined source. Examples include wastewater treatment plant discharges and industrial plant stormwater discharges. There are a total of six wastewater treatment plant (WWTP) discharges within the Christmas Bay watershed. Three are municipal facilities (Danbury, Angleton #1, Angleton #2), two are private mobile home parks (Angle Acres Water Supply Corporation, Orbit Systems, Inc.) and one is an institution (Brazoria County Detention Facility). In addition, the Detention Facility is permitted for a feedlot, which is also a regulated point source discharge. These facilities are shown on the map on page 16.

The water quality of the contributing streams to Christmas Bay is of extreme importance given the pristine nature of the Bay. Recently, a wastewater discharge permit proposed to discharge directly to the Christmas Bay was denied because of the resulting negative impacts on the Bay.



Municipal Discharges

- A Angleton
- B Danbury
- C Angle Acres Water Supply Corp
- D Brazoria County Detention Center

Christmas Bay Watershed

Houston-Galveston Area Council

Point Discharge Locations

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

- Municipal Discharge
- A Municipal Discharge Letter

There are three concentrations of oil and gas activity in the watershed: one northwest of Danbury; one near Angleton, concentrated west of the city; and, one in the Hoskins Mound area northeast of the Brazoria National Wildlife Refuge. There are over 100 permitted wells in each of these areas, though it is unknown how many of these are active. The point discharges from active wells is regulated for oil and grease content.

LEGISLATIVE SUMMARY

Federal Legislation

Federal Water Pollution Control Act (Clean Water Act)

The Federal Water Pollution Control Act of 1972 and its subsequent amendments form the legislative basis for regulating point source discharges. Commonly referred to as the Clean Water Act (CWA), this legislation established a combined federal/state system of water quality control. The CWA set forth criteria for developing water quality standards and effluent limitation guidelines under the National Pollution Discharge Elimination System (NPDES). Once a state has devised a program which meets federal minimum requirements, it can apply to the EPA for permission to administer its own program. The TWC has applied to the EPA for NPDES designation, however, the application is currently under review.

Section 403 of the CWA establishes a set of criteria for the discharge of point source pollutants into the oceans, territorial sea, or waters of the contiguous zone. The criteria determine the degradation of the waters of the territorial seas, the contiguous zone, and the oceans, including: the effect of disposal of pollutants on human health or welfare (including plankton, fish, shellfish, wildlife, shorelines, and beaches); marine life; and the effect on alternate uses of the oceans. If the information regarding any proposed discharge is insufficient, the permit will not be issued.

Financial Assistance

Financial assistance is authorized by Section 405, the Construction Grants and Loan Program. Monies are available for construction of new treatment facilities required under the CWA. The grant program was gradually phased out by amendments to the 1972 Act, shifting the financial burden to state and local governments.

Pretreatment Requirements

The CWA also established the National Pretreatment Program. Under Section 307, all publicly-owned treatment works (POTW's) enforce "General Pretreatment Regulations" and "National Categorical Standards." These regulations and standards require industries to treat the release of any pollutants that might interfere with the POTW process or cause harmful effects to effluent water quality. Treatment also can include installation of pollution abatement equipment.

Texas Legislation and Regulations

Texas Water Code

As enacted by the Texas Water Quality Act, the Texas Water Code provides for the conservation and development of Texas' water resources. These water resources include virtually all surface water, watercourses and groundwater inside the territorial limits of the state. The Code also provides for the "National Pollutant Discharge Elimination System" which may delegate to the state of Texas in accordance with sec. 402(b) of the Clean Water Act. As mentioned previously, the Texas Water Commission application for the NPDES permit program is currently under EPA review.

The Code authorizes the TWC to issue permits for the discharge of waste or pollutants into or adjacent to the waters of the state. The TWC may refuse to issue a permit if it violates the provisions of any state or federal law, rule, or regulation. At this time permit applications must be submitted to both the TWC and the EPA. The code also prohibits any person to discharge from a point source of any waste or pollutant. Any person who violates this provision is subject to a civil penalty not less than \$50 nor more than \$10,000.

Texas Natural Resources Code

The Texas Natural Resources Code gives the Texas Railroad Commission (RRC) authority to regulate discharge from storage, handling, transportation, reclamation or disposal of waste materials resulting from activities associated with the exploration, development, or production of oil, gas, or geothermal resources. The RRC requires permitting of injection wells related to oil and gas activities.

FEDERAL REGULATORY AGENCIES

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency's (EPA) general charge is to protect and enhance the environment now and for the future to the fullest extent possible under federal law. The agency's mission is to control and abate pollution in the areas of air, water, solid waste, pesticides, radiation and toxic substances. Its mandate is for an integrated, coordinated attack on environmental pollution in cooperation with state and local governments. EPA's responsibilities and activities are broad and often conducted cooperatively with other agencies. The following is a breakdown of EPA's major point source-related program responsibilities in the Christmas Bay watershed.

Water Quality

Under the Clean Water Act, EPA has major responsibilities for management of water quality with the primary objective being to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The Clean Water Act provides EPA with a number of authorities, including: setting and enforcing water quality standards;

administration of the National Pollutant Discharge Elimination System (NPDES) for municipal and industrial wastewater discharges; providing federal funds for construction of wastewater treatment systems (this role is being replaced by State Revolving Loan Fund); and State and areawide planning and management programs to coordinate broad-based pollution control decisions and to implement feasible methods to achieve clean water goals.

Under the NPDES program, EPA may delegate wastewater discharge permitting to a state. Texas has not, as yet, been delegated this authority, though this designation is currently pending. As a result, wastewater treatment facilities must currently be permitted both by EPA and the Texas Water Commission.

TEXAS REGULATORY AGENCIES

Texas Water Commission

The Texas Water Commission (TWC) is the lead agency in the management of point sources of water pollution in the Christmas Bay watershed. Supervision of water districts, the water quality programs (permits, enforcement and planning), and the certification program for wastewater treatment plant operators all lie within its jurisdiction.

The TWC is organized along programmatic lines with permitting, enforcement and planning responsibilities for each major program divided into several divisions. The divisions with responsibilities for point source activities in the Christmas Bay watershed are: Office of Hearings Examiners (conducts public hearings for wastewater treatment permit applications, enforcement); Office of Public Interest (represents the public interest in environmental quality and consumer protection issues under the Commission's jurisdiction); Legal (preparation/revision of agency rules, legal counseling concerning permit application processing, administrative enforcement actions, hearings and administrative lawsuits involving the agency); Water Utilities (water district supervision); Water Quality (prevention, control and abatement of water pollution, coordinating all water quality planning in the state in cooperation with regional agencies and local governments, processing wastewater permit applications, developing municipal and industrial NPDES permits for EPA, providing enforcement activities to identify violations of permits and bring them into compliance, and certification of wastewater treatment plant operators); and Field Operations (administration of the local field office and operation of a wet chemistry laboratory in Houston).

Water Quality Standards

The TWC sets surface water quality standards for Texas stream segments, as required by Section 303 of the Clean Water Act. The types of standards which the TWC may set are somewhat open, but all must be approved by EPA. Water quality standards are subject to review at a minimum of once every three years. This review process includes public review and comment.

The Texas Surface Water Quality Standards contain general goals and criteria to prevent degradation of waters, as well as numerical criteria for toxic constituents, site-specific uses, application of standards and determination of standards attainment.

For Bastrop Bayou Tidal, Segment 1105, the following standards apply:

Water Uses - contact recreation; high quality aquatic habitat.

Numerical Criteria - 4.0 milligrams per liter dissolved oxygen; 6.5-9.0 pH range; 200/100 milliliters fecal coliform; maximum temperature of 95 degrees Fahrenheit.

For Christmas Bay, Segment 2434, the following standards apply:

Water Uses - contact recreation; high quality aquatic habitat.; oyster waters.

Numerical Criteria - 4.0 milligrams per liter dissolved oxygen; 6.5-9.0 pH range; 14/100 milliliters fecal coliform; maximum temperature of 95 degrees Fahrenheit.

These standards are currently scheduled for public hearing in December 1990.

Wastewater Discharge Permitting

At least partial implementation of EPA's point source program is carried out through the Texas Water Commission. The implementation tools include: the development of NPDES permit discharge limits; enforcement of NPDES permits; development of pretreatment and sludge management programs; management of state construction grant programs; water quality planning; and funding of a state revolving loan fund.

The State of Texas is currently awaiting final approval from EPA on delegation of the NPDES Permit Program. If this delegation is made, the TWC will be the sole permitting agency for municipal and industrial wastewater discharge. It is anticipated that delegation will occur by the end of 1990.

The TWC's wastewater discharge permit evaluations include a technical review period, during which the applicant has an opportunity to provide information to assist staff in developing a site-specific assessment and a draft permit. All preliminary determinations by TWC staff--including instream uses, impact analysis, antidegradation, effluent limits and other specification--are subject to additional review, comment and revision through a public hearing process.

TWC permits include requirements for biomonitoring to screen for toxic substances which have been listed by EPA in "Establishment of Ambient Criteria to Limit Human Exposure

to Contaminants in Fish and Shellfish." Additional toxicants may be evaluated on a case-by-case basis. The frequency of biomonitoring is dependent upon the size of the discharge and associated potential problems.

Water Pollution Control and Abatement Program

The Municipal Water Pollution Control and Abatement Program is the vehicle through which the Texas Water Commission will regulate all municipalities with a population of 5,000 or more for activities having the potential for causing pollution of the groundwater or surface water. Cities within the Christmas Bay watershed subject to this program are Angleton and Lake Jackson. The cities of Richwood and Danbury are currently under 5,000 population and would not be subject to this program. TWC's development of regulations for the program is currently in a review and comment phase.

The activities which will be addressed by this program are those that pose direct threats to water quality within a municipality's boundaries and extraterritorial jurisdiction. The program addresses point sources of pollution by requiring wastewater treatment plants to be permitted and to be in compliance with all local, state, and federal permit and pretreatment requirements and construction standards. The program will require cities to: develop and maintain an inventory of all significant waste discharges to the water within the city and, if the city chooses, within its extraterritorial jurisdiction; monitor all significant waste discharges; collect and conduct periodic inspections and tests of the waste discharges being monitored; and have a cooperative procedure with TWC for obtaining compliance. Proposed regulations call for cities to collect an annual fee for operation of the Control and Abatement Program and to remit, annually, 5% to the Water Commission for technical assistance and support. Currently no direction has been offered to cities as to the method of fee collection.

Texas Railroad Commission

Generally, the Texas Railroad Commission (RRC) has regulatory jurisdiction over the discharge and disposal of waste materials that result from activities associated with the exploration, development, and production of oil, gas or geothermal resources.

The Oil and Gas Division is the largest division within the agency and is responsible for administering the permit program (permits, enforcement) as it relates to the discharge of oil and gas wastes. Discharges permitted by the RRC may not cause a violation of the surface water quality standards established by the TWC.

Discharges of water produced from oil and gas facilities must be permitted by the RRC. Permit holders must submit quarterly reports to the RRC District Office in Houston. RRC staff monitor point source discharges on a random basis approximately once per month.

Inspections of point source discharges are also made if a permit is transferred or complaints are filed. If RRC staff note an oil and/or grease concentration of >25 milligrams per liter, the permit holder is notified and an inspection is conducted. Texas Parks and Wildlife Department game wardens assist the RRC in observing oil and gas facilities in the field and reporting apparent irregularities.

The RRC is currently developing an NPDES Permit Program and has adopted a new statewide rule containing provisions necessary for the RRC to conduct the program for discharges of produced water and other oil and gas wastes. This rule will become effective upon delegation of the NPDES program by EPA.

Texas Water Development Board

The Texas Water Development Board (TWDB) has the primary responsibility for water supply and for administering water financing for the state. These programs have potential impact on the Christmas Bay watershed in that they can be used by local entities for the construction of wastewater treatment plants which discharge to the Bay tributaries. TWDB is currently responsible for the administration of the Texas Water Development Fund, Water Assistance Fund and the Federal Construction Grants Program and the State Revolving Loan Fund Program (SRF). These programs are used to fund a political entity's new or expanded facilities. The TWDB approves and monitors the design, size, cost, construction, and financing of such projects. TWDB also approves planning grants for studying local water problems and needs.

The storage acquisition program, originally for water supply and flood control, was extended to apply to regional water and sewer facilities so they, like reservoirs, could be built with excess capacities.

Facilities and projects constructed with TWDB financial assistance must come under the guidelines of other agencies which regulate the particular type of project. For instance, a wastewater treatment facility would have to meet Texas Water Commission design criteria and discharge requirements.

Construction Grants Program

This program makes grants available to local communities for up to 55% of the costs of certain components of public wastewater collection and treatment facilities to help meet water quality requirements of the Texas Water Code and Clean Water Act. As a result of the 1987 amendments to the Clean Water Act, this grant program has been gradually converted to a State Revolving Loan Fund (SRF). The Construction Grants Division administers this program.

State Revolving Loan Fund

The SRF is administered by the Construction Grants Division. The SRF is a perpetual revolving loan fund based on federal capitalization grants and a required 20% state match. The Water Development Board offers low-interest loans. The repayments of principal and interest on these loans will be used for new loans for other projects.

Water Development Fund

The Water Development Board also provides funding for regional wastewater treatment systems through the Water Development Fund. This program is also a low-interest loan program administered by the Development Fund Manager's Office. Financing is also available for regional water facilities, flood control projects, and projects designed to convert from the use of ground water to surface water.

LOCAL REGULATORY AGENCIES

The National Pretreatment Program

The Clean Water Act established an industrial pretreatment program for discharges into municipal wastewater treatment systems. The 1977 Clean Water Act Amendments mandated additional regulation of pollutants in industrial discharges to municipal systems. In response to this mandate, the National Pretreatment Program was developed in 1981.

The National Pretreatment Program is designed to prevent interference with the biological treatment process in wastewater treatment facilities, prevent the pass-through of pollutants and to prevent the contamination of sewage sludge by limiting industrial discharges to municipal systems. Pretreatment reduces the strengths and quantities of toxic materials, minimizing risk to treatment plant workers and reducing damage to sewers and treatment plant equipment. Municipalities are responsible for enforcing general Pretreatment Program regulations. There are approximately 26 types of industry which are required to meet National Categorical Standards for pretreatment prior to discharge to municipal systems.

The general pretreatment requirements outline the responsibilities of all entities involved in pretreatment program implementation. They also outline two sets of standards. The "general and specific prohibition" clause prohibits the release of any pollutants that may interfere with the treatment process or cause harmful effects. Said pollutants include those which could interfere with the treatment process, cause fire or explosion, flow obstruction, corrosion, or excess heating of wastewater. The National Categorical Standards are technology-based effluent standards requiring certain industries to install pollution abatement equipment that treats wastewater to the quality that would be permitted in a direct discharge to state waters.

City of Angleton

The City of Angleton has pretreatment requirements which govern the industrial wastewater and septic tank rinse received by its municipal wastewater treatment plant. (None of the other treatment plants in the watershed receive industrial wastes.) The municipal plant currently receives industrial discharges from four sources, primarily washwater from tank trucks. Dischargers are required to keep the wastewater in holding tanks, send samples to a laboratory for analysis, and submit the results to the City before discharging to the municipal system. Any hazardous materials must be segregated and transported to a permitted hazardous waste treatment facility by a licensed hauler. Each discharger is also required to submit to the City a list of every material that has been washed at their facility. The City then compiles a master list and submits it to TWC and EPA. Aside from the municipal permit, dischargers also must have TWC permits. All discharges to the City's system must meet the TWC's quality requirements for direct discharges to a water body.

Brazoria County

The Brazoria County Environmental Health Department investigates illicit discharges, primarily in the unincorporated areas of the County. Most of the bayous and streams within the watershed are in unincorporated areas. The County does not play a regulatory or enforcement role in the area of air quality.